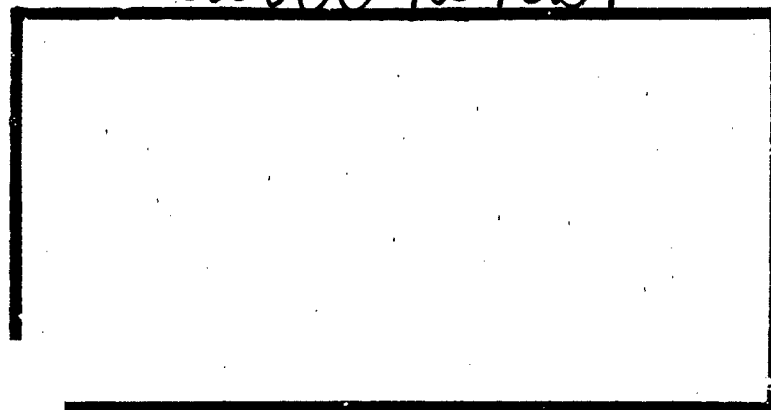


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6 AN ANALYSIS OF FACTORS INFLUENCING
THE TURNOVER OF UNITED STATES
AIR FORCE PILOTS IN THE
SIX TO ELEVEN YEAR GROUP.

¹⁰
Captain Clyde E. / Gulick / USAF
Major Henry E. / Laakman, Jr. / USAF

14 AFIT- LSSR-4-80

9 Master Thesis

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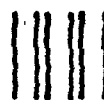
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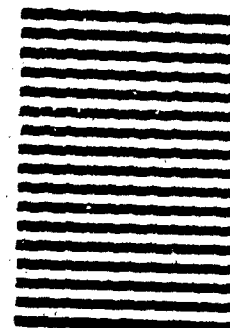
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A current major problem facing Air Force managers is the retention of pilots in the six to eleven year group. This research uses a conceptual model of turnover as the structure for the study of the pilot exodus. The USAF Officer Exit Survey, designed and administered by AFMPC, was used as the data base to ascertain the most significant determinant of turnover--assignment policies. A recommended modification to the current assignment policies could improve pilot retention by a significant amount. This proposed recommendation would require no additional appropriations of funds or approval from agencies outside the Air Force chain of command.

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AN ANALYSIS OF FACTORS INFLUENCING THE TURNOVER OF
UNITED STATES AIR FORCE PILOTS IN THE
SIX TO ELEVEN YEAR GROUP

A Thesis

Presented to the Faculty of the School of Systems and Logistics
of the Air Force Institute of Technology
Air University

In Partial Fulfillment of the Requirements for the
Degree of Master of Science in Logistics Management

By

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June 1980

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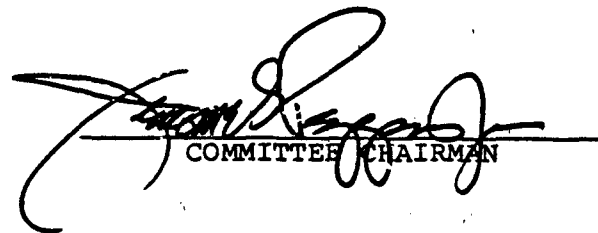
and

Major Henry E. Laakman, Jr.

has been accepted by the undersigned on behalf of the
faculty of the School of Systems and Logistics in partial
fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN LOGISTICS MANAGEMENT

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CHAPTER I

BACKGROUND AND LITERATURE REVIEW

Introduction

At a meeting of the Air Force Association Convention in Washington, D.C. on 18 September 1979, General Lew Allen, Chief of Staff, United States Air Force, said:

. . . we face an extremely serious problem in the retention of rated personnel. The exodus of young pilots and navigators has affected every aspect of our force planning. These departures will be felt well into the future [23:3].

General Allen's reference to the exodus of young pilots and navigators was confirmed by the Air Force Manpower and Personnel Center, Officer Retention Branch (AFMPCF). In 1976 a 49.4 percent attrition equated to 1500 pilots, in 1977 the 52.1 percent equated to 1650 pilots, and the 1979 attrition peaked at the rate of 73.13 percent, or 2276 pilots (2; 10) (see Table 1). These percentages of attrition represented only the loss of pilots in the six to eleven year groups. The 73.13 percent for 1979 can be interpreted to mean that for every 100 pilots who entered their sixth year of active duty, 73 had left the service by the end of their eleventh year of active duty. This represented a total loss of over 5400 pilots in the three years from 1976 to 1979 (see Table 2). What is the potential effect

TABLE 1
ATTRITION RATES (2; 10)

Period Ending	Loss Rate
September 1976	49.4
March 1977	47.8
September 1977	52.1
March 1978	53.7
September 1978	60.4
March 1979	69.8
September 1979	73.13

TABLE 2
PILOT SEPARATION (2; 10)

March 1976 - March 1977	1500
March 1977 - March 1978	1650
March 1978 - March 1979	2276

of this loss of pilots to the Air Force? In the words of General B. L. Davis, Commander of Air Training Command,

What concerns me most, is not the loss of a pilot capable of flying a mission, but the far greater loss of an irreplaceable cadre of experienced and potential leadership in middle-management ranks. That loss will eventually affect our senior leadership ranks. We can put someone into a trainer cockpit and have that person flying a mission in a year or two, but we can't replace 11 years of operational experience and skills in any time short of 11 years [12:8].

The problem of turnover of pilots in the Air Force can be viewed from a classical "problem solving" standpoint. As such, the cause of the problem must first be determined before any decision can be made regarding alternative solutions. The specific objective of this thesis is to determine the specific cause or causes of turnover of Air Force pilots, and to suggest a potential solution to this problem which can be implemented in the short-term.

Background

The initial step toward an understanding of turnover of Air Force pilots is a review of the existing literature dealing with personnel turnover. For the purpose of this research, turnover is defined as the voluntary separation of an individual from the organization; that is, an individual "quits" one organization and job to find employment elsewhere. A great deal of research has been conducted on the subject of voluntary turnover in an organizational setting. Recognized works in the field include "The Study

of Turnover" by James L. Price (27); "Organization, Work, and Personal Factors in Employee Turnover and Absenteeism" by Lyman W. Porter and Richard M. Steers (26) and works by Brayfield and Crockett (6). Additionally, Ronald L. Blackburn and Randall L. Johnson developed a model describing turnover of junior officers in the Air Force by synthesizing the models used by Price, and Porter and Steers (5). The model developed by Blackburn and Johnson will be used as the framework for this study dealing with Air Force pilots. The determinant variables as discussed by Blackburn and Johnson will be operationally defined for the purpose of this study to deal with issues specifically related to turnover of Air Force pilots.

Blackburn and Johnson Model

The Blackburn and Johnson model is comprised of "determinate" variables of turnover and "intervening" variables which together explain turnover (5:35) (see Figure 1). The determinate variables are those factors which are considered to be the roots of satisfaction or dissatisfaction, and hence are the "determinants" in the decision to leave an organization. The determinate variables are age, tenure, pay, promotion, peer group integration, role clarity, job autonomy and responsibility, task repetitiveness, satisfaction with supervisor style, and similarity of job and interests (5:40).

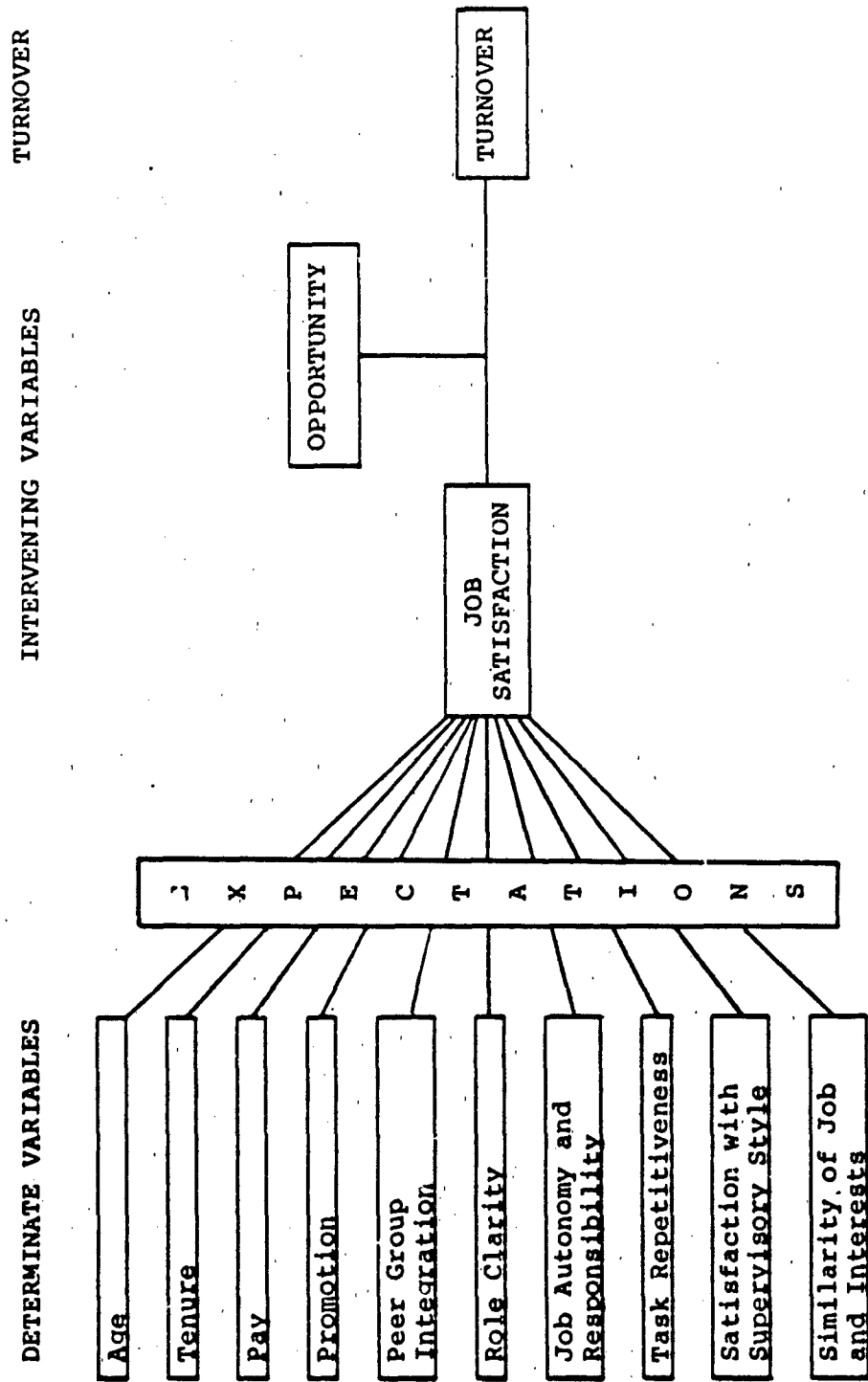


Fig. 1. Blackburn and Johnson's Synthesized Model (5)

Intervening Variables

Met Expectations. The intervening variables are "met expectation" and "opportunity." The determinate factors plus what is expected by the individual lead to either job satisfaction or dissatisfaction. This concept of "met expectation" is then the first intervening variable (26:152).

The concept of met expectations may be viewed as the discrepancy between what a person encountered on the job in the way of positive and negative experience and what he expected to encounter [26:152].

The individual will therefore be satisfied or dissatisfied by the extent to which the job provides rewards which meet his expectations.

Opportunity. Opportunity is the second intervening variable in the Blackburn and Johnson model. Opportunity is defined as "the availability of alternative roles in the environment [27:71]." In the case of many Air Force pilots the opportunity is employment by the domestic airlines. The hiring of Air Force pilots by the domestic airlines has been the subject of considerable controversy. It was initially believed the Air Force simply could not compete with the airlines because of the higher pay, fringe benefits, and retirement plans offered. Opinion surveys from the Military Airlift Command (MAC), Tactical Air Command (TAC), and Strategic Air Command (SAC) now show that the airline opportunity is not an incentive which is so strong that it is pulling already satisfied people out of the Air Force (19).

General T. R. Milton, USAF (Retired) summed up that feeling:

There was a note of regret that ran through most of the rationales for leaving the service, regret at abandoning a career that had a lot to offer and a few things wrong with it, some tangible, some less so. It is the things wrong, rather than the attraction of civilian life that seem to influence their decisions [20:138].

Determinants of Turnover

The following determinants of turnover, as listed by Blackburn and Johnson, can be shown to directly relate to turnover of pilots in the Air Force. Each of the determinants will be operationally defined for pilots in the Air Force.

Age. Age is not considered to be a factor contributing to turnover because only pilots in the six to eleven year group are considered. The age of pilots in the six to eleven year group ranges from approximately twenty-seven to thirty-two years. This range is considered to be roughly equivalent and therefore age is not considered to be a factor in USAF pilot turnover.

Tenure. This determinant as listed by Blackburn and Johnson is operationalized to mean the up-or-out management system in the Air Force. The up-or-out management system was mandated by Congress when it passed the Officer Personnel Act of 1947. The up-or-out management system is

also an integral part of the proposed Defense Officer Personnel Management System (DOPMS). Under this proposed system, a reserve officer must gain regular status by the eleventh year of regular service or he will be released from active duty. The Defense Manpower Commission Report criticized up-or-out as ". . . a wasteful practice [13:1]."

With the tremendous increase in training costs, many argue the validity of an up-or-out system which eliminates an officer for reaching a particular age, or for being passed over for promotion. "While most pilots agree that some sort of quality control is needed, they did not agree that the first control point should be at temporary major [8:23]."

Pay. Pay is defined as ". . . money, fringe benefits, and other commodities that have financial value which organizations give the employees in return for their services [18:1]."

This large area of pay is operationalized to include medical benefits, actual amount of salary, flight pay, annual pay increases due to inflation, and retirement benefits. In the broad sense of the definition, it includes pay and benefits for an Air Force pilot. The affect of pay on the turnover of pilots was addressed by General Allen when he said:

It is a mistake to overemphasize the effect that pay has on the decision of exiting pilots and other Air Force professionals. Frequently pay is not the chief issue in resignation. It is sometimes the

frustration that accompanies readiness and modernization efforts. For others it is the stringency that accompanies efforts to get more out of the resources provided for mission accomplishment and training [1:63].

Pay was operationalized in this study to include not only the wages and salary of pilots, but also the benefits such as the retirement system, medical and dental benefits, exchange and commissary privileges, and so on.

The erosion of benefits is an area that has been the subject of numerous studies such as the President's Commission on Military Compensation, the Defense Manpower Commission study, House Appropriation Committee study, and the Library of Congress Summary of Military Pay. There are valid points on both sides of the argument of whether there is or is not an actual erosion of benefits. The only consensus is that there is a "perceived" erosion of benefits. According to General Allen:

The present economy, inflation, and federal pay cap quite naturally draw members' attention to the Air Force pay. Some perceive a decline in purchasing power and an erosion of benefits. And when Air Force members perceive there is a problem, there is a problem [1:63].

Promotion. The definition of promotion:

. . . represents the individual's perceived level of, and equity of, opportunity for upward movement in military rank and/or opportunity for a position within the organization with greater prestige, power, or responsibility [5:38].

An integral part of the military promotion system is the Officer Effectiveness Report system and the "promotion opportunity."

The controlled OER system was a highly controversial rating system which many pilots cited as a reason for leaving the service (9). The controlled system was implemented in 1974 with the primary objective of overcoming rating inflation. The key feature of the new report was a "controlled" rating. The rating provided an index of the ratee's potential relative to contemporaries of the same grade within a specific review group. Due to the highly controversial nature of this controlled OER, a review of the OER was briefed to the AF Council (Air Staff Deputy Chiefs of Staff and Vice Chief of Staff) in September 1978. The briefing focused on the issue of whether controlled ratings were essential for effective management when additional factors, such as uncertainties caused by pay and compensation review and impacts of airline hiring, were considered.

At the conclusion of this briefing, and after weighing all factors, the Chief of Staff decided to give priority to the self-esteem needs of individual officers by immediately removing rating controls [29:62].

The promotion opportunity is related to the up-or-out system and is compounded by congressional grade and ceiling strengths. The promotion opportunities are 80 percent for major, 70 percent for lieutenant colonel, and 50 percent for colonel (29). However, due to changing congressional grade and ceiling strengths, these numbers fluctuate on a regular basis. The overall affect of

promotion opportunity is a factor cited by pilots as a reason for leaving the service (10:3).

Peer Group Integration. According to Blackburn and Johnson, peer group integration is important because "... turnover increases if the organization environment does not allow for formation of primary groups [5:38]." Van de Merwe and Miller stated that:

... a major need satisfier is likely to be that of belonging to a cohesive and rewarding group, and if this need is not satisfied, the worker will very likely fail to adjust to the work situation and will therefore more readily withdraw from it [27:71].

Role Clarity. Role clarity is defined as the individual's perception of the amount and frequency of clarifying information received relative to job accomplishment and performance (5:54). Blackburn and Johnson define role clarity as containing the concepts of instrumental and formal communication. Instrumental communication is defined as:

... the transmission of information directly related to role performance. ... Successively higher amounts of instrumental communication will probably produce successively lower amounts of turnover [27:73,74].

This instrumental communication is usually formal by nature as opposed to informal communication such as gossip. Lack of satisfaction with supervisory style and with communication channels has been a significant irritant among pilots (8:23).

Formal communication is defined as general directives issued to members of the organization as a whole (5:23).

Job Autonomy and Responsibility. Job autonomy and responsibility are factors which had an influence in the Blackburn and Johnson model. Both factors involve higher order needs such as self fulfillment. In the case of pilots, the authors believe job autonomy and responsibility are affected by policies dealing with unstable flight schedules, additional duties, long duty hours, lack of opportunities to demonstrate initiative, and lack of authority to carry out responsibilities.

Within the USAF, the amount of job autonomy and responsibility vary greatly by command. The number of additional duties required by the command also varies but pilots often perceive that their responsibilities and efforts in the area of additional duties are rewarded by commanders more so than their primary job performance (30).
The Military Airlift Command (MAC)

. . . has taken action to eliminate 60 percent of the additional duties required by headquarters. Local commanders were directed to place primary emphasis on flying duties, and crewmembers new to MAC cannot be assigned additional duties for their first six months on board [7:1].

Satisfaction with Supervisory Style. This determinant of satisfaction is defined as the individual's

perception of satisfaction with various aspects of leadership and supervision. These aspects include: supervisor has employee interests and those of Air Force at heart; supervisor is approachable and helpful; supervisor has good knowledge of the job.

Research has indicated "unresponsive leadership" is a frequently stated factor affecting the decision to leave the USAF.

Many separating pilots view senior officers as self-centered individuals more concerned with promotion than with mission essential items or force readiness. . . . Many separatees reported that they were not counseled or were inadequately counseled relative to their separation decisions. The impression left was that many pilots might have changed their minds in regard to separating if strong, aggressive, local counseling had occurred [8:23].

Similarity of Job and Interest, and Task Repetitiveness. These two determinants of turnover discussed by Blackburn and Johnson are operationally defined for the purpose of this research to mean the Air Force personnel assignment process. The task repetitiveness theme is represented in the Rated Distribution and Training Management (RDTM) system which is organized according to major weapon system groups. Under this system a pilot is assigned to a weapon system group such as a fighter, bomber, or airlift, and remains within that group for the majority of his flying career (14).

For an Air Force pilot, similarity of job and interest includes both the geographical location and the weapon system to which assigned compared to his/her personal desires. The assignment system then must be considered an important consideration in the determination of turnover of pilots. The assignment system and its contribution to turnover in the past, and the assignment system and its potential for contributing to turnover in the future, is an area of concern. Assignments and the assignment system appear to have been an area of concern for many pilots who have left the service. According to the Commander's Information Brochure II,

. . . Assignments have always been a key player in an officer's career decision. As previously indicated in this brochure, we have surveyed many rated officers to identify major career irritants that contribute to our increasing separation rates. Under the heading of "Assignment" a common theme surfaced . . . lack of the officer's actual participation in the assignment process [29:1-12].

Although pilot retention studies have been conducted since 1976, focus on assignment policies as a significant contributor is just beginning. "Assignment policy is under close scrutiny now to determine whether changes can mitigate some of the rated utilization anxieties that surveys have indicated [28:4]."

The personnel assignment system also can have a significant impact on a pilot's family life and family considerations. The requirements for remote overseas

assignments, lengthy temporary duty away from home, long duty hours, alert, and other factors, such as undesirable geographical locations, can and do cause the assignment process to impact family life.

The personnel system periodically affects every pilot's life through assignment decisions which are made by resource managers¹ at AFMPC. "What managers need are approaches to acquire, motivate, and retain valuable human resources [17:98]." The task of the resource manager is, ostensibly, very difficult due to the large volume of pilots' inputs via the AF Form 90, Officer Career Objective Statement (see Appendix A), and the large number of assignment vacancies that are to be considered. The inputs on the AF Form 90 express the individual's preferences, goals, and motivation. "Motivation is process oriented, and concerns choice, direction, and goals [16:228]."

General Allen, USAF Chief of Staff, has recognized the relative importance of motivation and job satisfaction.

Given current anti-inflation measures, simply bidding with higher pay for recruits is infeasible. Instead we must rely on higher forms of motivation to attract young people and to provide genuine career satisfaction for all Air Force people [1:63].

As mentioned previously, the two determinants of task repetitiveness and similarity of job and interests

¹A resource manager is a counselor who is also responsible for the final allocation of an individual pilot resource to a specific assignment vacancy.

have been operationally defined to mean the personnel assignment process. In order to more specifically examine the unique determinants, the assignment process is therefore divided into three new determinants for the purpose of this thesis. These new factors are Past Assignments, Assignment Policies, and Family Considerations. Blackburn and Johnson's original model is therefore modified slightly to include these three new determinants of turnover in place of the original task repetitiveness and similarity of job and interest as shown in Figure 2.

Hypotheses

Hypothesis 1--Tenure is the most significant determinant of turnover for USAF pilots in the six to eleven year group.

Hypothesis 2--Pay and benefits is the most significant determinant of turnover for USAF pilots in the six to eleven year group.

Hypothesis 3--Promotion is the most significant determinant of turnover for USAF pilots in the six to eleven year group.

Hypothesis 4--Peer group integration is the most significant determinant of turnover for USAF pilots in the six to eleven year group.

Hypothesis 5--Role clarity is the most significant determinant of turnover for USAF pilots in the six the eleven year group.

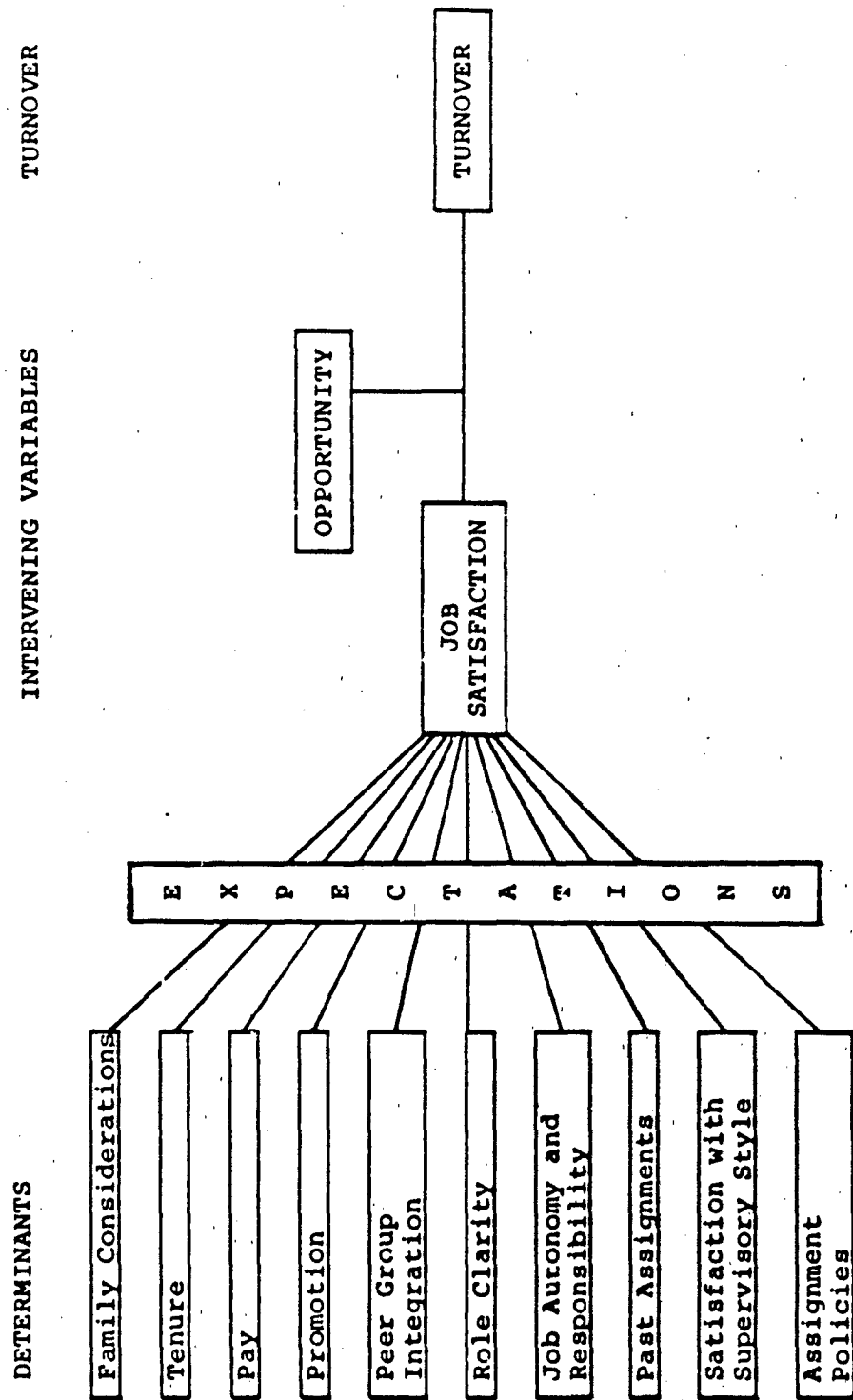


Fig. 2. Operationalized Model

Hypothesis 6--Job autonomy and responsibility is the most significant determinant of turnover for USAF pilots in the six to eleven year group.

Hypothesis 7--Satisfaction with supervisory style is the most significant determinant of turnover for USAF pilots in the six to eleven year group.

Hypothesis 8--Past assignments is the most significant determinant of turnover for USAF pilots in the six to eleven year group.

Hypothesis 9--Assignment policies is the most significant determinant of turnover for USAF pilots in the six to eleven year group.

Hypothesis 10--Family considerations is the most significant determinant of turnover for USAF pilots in the six to eleven year group.

Hypothesis 11--Civilian job opportunity is the most significant factor which is influencing the turnover of USAF pilots in the six to eleven year group.²

²Although civilian opportunity is not a "determinant" of turnover, as described in the model, it will be tested to determine if civilian opportunity is a "significant factor" which is influencing turnover.

CHAPTER II

RESEARCH DESIGN AND METHODOLOGY

Introduction

This chapter presents the research design and methodology employed for this study. The data instrument used to gather the data will be discussed first, followed by variable definitions and measurement plan. Finally, this chapter will discuss the data analysis plan.

Data Gathering Plan

Data Collection Instrument

The data collection instrument was the 1979 United States Air Force Officer Exit Survey (hereinafter referred to as the Exit Survey). The survey was administered to all Air Force officer personnel who requested a date of separation (DOS) beginning in November 1978 and ending in May of 1979. During this time frame, 226 personnel returned the Exit Survey. During this time, 1200 pilots left active duty but only 94 returned Exit Surveys.

The survey consisted of eighty-nine questions. The first thirteen questions provided demographic information. The remaining seventy-six questions related to potential factors affecting the decision to separate from active duty. A copy of the instrument is attached as Appendix B.

Survey Bias

The Exit Survey was only administered to those individuals who applied for and received a DOS. This may suggest a bias due to cognitive dissonance. This means that once an officer has decided to leave the service all his activities will reinforce his belief that he has indeed made the right decision. As a result, a respondent may have sufficiently rationalized the decision to separate and his responses may have been influenced by this rationalization. The authors recognize this potential for bias but believe its effects were minimal for the purpose of this study. No attempt has been made to describe the analysis as absolute or pinpoint. Rather, this thesis was designed to form the background methodology for analysis of further data from the Exit Survey as it is made available.

The small percentage of returned surveys may suggest further bias. The authors believe, however, the results of the data analysis will be useful as a pilot study of factors that affect retention. As the Exit Survey is a continuing program, and as additional quarterly data are gathered, the authors believe this study will serve as the basis for comparison for additional quarterly data.

Survey Advantages

The Exit Survey's advantages are in its design. Earlier surveys, such as the 1977 Air Force Quality of Life

Survey, attempted to measure job satisfaction and other attitudinal factors (5). These data were then used by USAF leadership to determine possible policy changes to enhance retention. The Exit Survey does not link turnover directly to job satisfaction but, instead, measures the affect of each determinant as a direct contribution to turnover. Analytical results from these data will be in terms of retention.

Instrument Validity and Reliability

This instrument was constructed by the Air Force Military Personnel Center, Survey Branch (AFMPCY). The instrument was assumed valid and reliable by the authors of this thesis.

Description of the Population

The target population of this thesis consisted of USAF pilots with six to eleven years of active service who were eligible for separation from the Air Force. The population was selected due to the emphasis on this group's attrition rate by senior USAF leaders (1; 12; 20).

Description of the Sample

The sample consisted of the 94 pilots from the target population who responded to the Exit Survey. Data was obtained through the cooperation of AFMPCY. This branch generated the survey instrument and collected the

data from Consolidated Base Personnel Offices at Air Force bases worldwide.

Inferences About the Population

Inferences about the population have been made only for the Air Force personnel represented by the sample previously described; that is, pilots in the six to eleven year group. Further research and data generation would be required before inferences could be made about other year groups or other specialty segments of the Air Force personnel body.

Variable Definition and Measurement

Intervening Variables

Expectations. The intervening variable of Expectations is the dependent variable of the Blackburn and Johnson Model presented in Figure 1. This expectation of individuals to make a career in the Air Force is used as a surrogate measure of turnover (5:49). Each respondent's expressed career intent was measured by his response to survey question number 12, which read:

Think back to when you were commissioned and began active duty. What was your intent with regard to making the Air Force a career?

The responses to this question were arrayed on a seven-point Likert scale and were given values from 1 (definitely would not make the Air Force a career) to 7 (definitely would make the Air Force a career).

As discussed in Blackburn and Johnson, the career intent question has proved to be reliable and valid.

Similar questions were used in the Naval Health Research Center and Air Force Human Resource Laboratory studies. These studies indicated that expressed career intent, as measured on a Likert response scale, is a reliable and accurate predictor of behavior [5:49].

Satisfaction. The Blackburn and Johnson synthesized model defines job satisfaction as an intervening variable. In their thesis the Air Force Quality of Life Active Duty Air Force Personnel Survey was used as the data base. One of the expressed purposes of their study was to determine the level of job satisfaction among Air Force junior officers. The purpose of this thesis, however, is not to determine the level of satisfaction but to determine the cause of that job satisfaction or dissatisfaction. The Exit Survey was administered only to those officers leaving the service so it is assumed that those officers who left the service were dissatisfied for one reason or another. Restated, the purpose of this thesis was to determine the specific causes of turnover. The conceptual model by Blackburn and Johnson was still used. However, the job satisfaction variable was ignored for the purpose of this thesis.

Opportunity. Opportunity, another intervening variable, represents the external factors that contribute to

the individual's turnover decision. In the case of pilots, the predominant influence was the hiring of pilots by the airlines but other alternative jobs in private industry were a potential factor. Opportunity was measured by questions 58, 59, and 61.

Opportunity to fly with the airlines.

Civilian opportunities (non airlines).

More job satisfaction in civilian job.

The responses to these three questions were arrayed on a 10-point Likert scale with values from 0 to 9 (see Appendix B for survey instructions). Each of the three questions was given equal weight and an Opportunity Score was obtained by summing the responses and dividing by the number of questions. This same procedure was used to measure the value of each determinant as well. The mean value obtained for Opportunity was 4.25. According to the description of the Likert scale on page 4 of the Exit Survey, a value of 0 equates to no contribution to turnover, values between 1 and 3 equate to minor contribution to turnover, values from 4 to 6 indicate moderate contribution, and values above 7 indicate major contribution to turnover. By this division of scores, the mean value of 4.25 for Opportunity would indicate that it had a moderate contribution to turnover.

Determinant Variables

Tenure. As operationally defined for this thesis, tenure refers to the up-or-out management system in the Air Force. Tenure was measured by the responses to questions 47 and 63.

Career uncertainty due to up-or-out management systems.

More job security in civilian job.

The responses, arrayed on the 10-point Likert scale were averaged to yield a mean value of 4.63. This indicates that tenure policies were a moderate contributor to turnover.

Pay and Benefits. Pay and Benefits was operationally defined to include pay, allowances, medical and dental benefits, commissary and exchange privileges, and the retirement system. The affect of pay and benefits as a contributor to turnover was measured by questions 20, 21, 22, 23, 24, 25, 26, and 60.

General erosion of benefits.

Inadequate medical and dental care for self.

Inadequate medical and dental care for dependent(s).

Actual pay too small.

Flight pay too small.

Actual pay increases too small.

Uncertainty resulting from proposed changes in retirement system.

Higher pay in civilian job (over the long term).

The responses for these questions were arrayed on the 10-point Likert scale to yield a mean value of 4.32. This indicates that pay was a moderate contributor to the turnover decision.

Promotion. Promotion represents the individual's perception of the effectiveness of the Air Force promotion system in terms of selecting the best qualified people for promotion (5:53). Promotion was measured by responses to questions 39, 40, 41, and 67.

Controlled OER(s) received in the past.

Other OER(s) received.

Promotion opportunity.

My chances of being promoted.

The responses, arrayed on the 10-point Likert scale, resulted in a 3.01 mean value. This indicates that promotion was somewhere between a minor and moderate contributor to the turnover decision.

Peer Group Integration.

Peer group integration, a strongly supported determinant, is primarily determined by the extent the individual's participation in a cohesive, rewarding, primary group [5:55].

Peer group integration was measured by the responses to questions 30, 34, and 65.

Low prestige of military profession.

Unhappiness with work group.

Better people to work with in civilian job.

The responses on the Likert scale yielded a mean value of 1.72. This indicates that peer group integration was only a minor contributor to the turnover decision.

Role Clarity.

Role clarity is another determinant of turnover that is strongly supported in the literature and represents the individual's perception of various aspects of the clarity of his task within the organization [5:54].

Role clarity was measured by the responses to questions 32, 33, 49, 50, and 55.

Not enough flying time.

Unable to fly during entire career.

Requirement for career broadening assignment(s).

Lack of opportunity for career broadening assignment(s).

Policies and procedures which undermine stature of an officer.

The responses on the 10-point Likert scale yielded a mean value of 3.50. This indicates that job clarity was between a minor and moderate contributor to the turnover decision.

Job Autonomy and Responsibility.

Job autonomy and responsibility, another strongly supported determinant of turnover, deals with the individual's perception of the amount and responsibility allowed on his job [5:56].

For the purpose of this study, job autonomy was operationally defined to include flight scheduling and additional duties. Job autonomy and responsibility were measured by questions 27, 28, 29, 31, 48, 53, 54, and 64.

Duty hours too long.

Unstable flight schedule.

Too many additional duties.

Too much ancillary training.

Too many petty restrictions.

Lack of opportunity to demonstrate initiative.

Inadequate authority to carry out responsibilities.

More freedom and independence in decision making in civilian job.

The responses on the 10-point Likert scale yielded a mean value of 3.52. This indicates that job autonomy and responsibility played a minor to moderate role in the turnover decision.

Satisfaction with Supervisory Style. "Various aspects of satisfaction with supervisory-style have strong support in the literature as a determinant of turnover [5:57]." Satisfaction with supervisory style was measured by the responses to questions 35, 36, 51, and 52.

Supervision and leadership at the unit/squadron level.

Supervision and leadership above unit/squadron level.

Lack of adequate recognition.

Too many inspections.

The responses on the 10-point Likert scale yielded a mean value of 3.93. This indicates that leadership factors played a minor to moderate role in the turnover decision.

Past Assignments. Past Assignments represents one of the operationally defined determinants from the original determinants of task repetitiveness and similarity of job and interests. Past Assignments represents the measurement of how previous assignments influenced the decision to leave the Air Force. Past Assignments was measured by questions 44 and 45.

Unsatisfactory aircraft/job assignment(s) in the past.

Unsatisfactory location of assignment(s) in the past.

The responses on the 10-point Likert scale yielded a mean value of 1.88. This indicates that Past Assignments played only a minor role in the determination to leave the Air Force.

Assignment Policies. Assignment policies represent the second operationalized determinant from the original determinants of similarity of interests and task repetitiveness. Assignment policies represents the degree to which present assignment policies influenced pilots' decisions to leave the service. Assignment policies affect on

turnover was measured by the responses to questions 42, 43, and 46.

Little say in future assignments.

Inability to cross-train from one weapon system to another.

Unsatisfactory future assignment(s).

The responses on the 10-point Likert scale yielded a 5.68 mean value. This indicates that assignment policies had a moderate influence on pilots' decisions to leave the Air Force.

Family Considerations. The third operationally defined determinant from the original determinants of task repetitiveness and similarity of job and interests was family considerations. This determinant was used to ascertain the degree of influence that family considerations play in the turnover decision. The questions used to measure this determinant were 37, 38, 56, 57, 62, and 66.

Excessive family separation due to TDY.

Excessive family separation due to PCS.

Spouse's job opportunity/income.

Lack of family acceptance of Air Force way of life.

More geographic stability in civilian job.

Less family separation in civilian job.

The responses on the 10-point Likert scale yielded a mean value of 2.37, which indicates that family considerations

played only a minor role in the decision to leave the Air Force.

Interim Summary

In summary form, the determinants and the effect each had in the determination of turnover can be viewed in Table 3. This table indicates there were no single determinants which, on the average, were considered major causes of turnover. "Major" is defined by the Exit Survey as those variables rated as 7, 8, or 9 on the 10-point Likert scale. Given these results, the objective of our data analysis plan was to determine which of the determinants was statistically the most significant factor causing the turnover of pilots in the six to eleven year group.

TABLE 3
CONTRIBUTION TO TURNOVER

	0	1	2	3	4	5	6	7	8	9
		Minor			Moderate			Major		
Family*									
Tenure*									
Pay*									
Promotion*									
Peer Group*									
Role Clarity*									
Job Autonomy*									
Past Assignments*									
Leadership*									
Assignment Policies*									

Data Analysis Plan

Statistical Method

Regression analysis was chosen to effectively analyze the relationships among the several determinants and the dependent variable. "Regression analysis describes the mathematical relationship between an independent variable, X, and a dependent variable, Y [21:400]." For this thesis, the determinants, as operationally defined in the preceding section of this chapter, were the independent variables and career intent (Q12) was the dependent variable. The data manipulation and regression analyses were performed by the Statistical Package for the Social Sciences (SPSS), Subprograms *COMPUTE and REGRESSION (22:96-101; 320-367).

Regression Coefficient, B

The regression coefficient, B, for each determinant was used to test for statistical significance. The F statistic derived through the regression analysis was tested at the .05 level of significance. The algebraic sign of each B value signified the relationship as direct or inverse. That is, if the sign of B was positive, a direct relationship between the variables was indicated. If the sign of B was negative, an inverse relationship was indicated. Therefore, when B is positive, the slope of the regression line would also be positive. Moreover, the value of B_1 "stands for the expected change in Y with a change in one unit in X_1 when X_2 (and all other independent

variables) is (are) held constant or otherwise controlled for [22:330]." This means that a change in career intent can be predicted if a determinant, such as Pay and Benefits, were to be increased by an added benefits package approved by Congress while all other determinants, such as Assignment Policy and Job Autonomy, remain unchanged.

Coefficient of Determination, R^2

A measure of the suitability of the multiple regression model is the coefficient of determination, R^2 . That is, R^2 indicates the strength of the relationships for the independent variables and the importance of all possible independent variables not considered (error term). The R^2 value gives "... the proportion of variability in the dependent variable Y that is explained by the independent variable X [25:408]."

As a proportion, R^2 can take on values from zero to one. When R^2 equals one, the independent variables chosen completely describe the variability of the dependent variable. No other independent variables exist that could better explain or predict the observed variations in the dependent variable. Conversely, if R^2 equals zero, the independent variables used in the analysis are of no significance in explaining the variation of the response variable. In this case, the researcher should seek out possible determinants that would result in an acceptable R^2 .

Hypotheses Testing

Each research hypothesis was tested by using statistical techniques consistent with the multiple linear regression model previously described (see Appendix C for statistical hypotheses). The null hypothesis was tested at the .05 level of significance for each determinant. This level allows for inferential interpretation with 95 percent confidence. Additionally, the statistical hypotheses provided the answers to complete the purpose of this research effort: identify specific cause(s) of turnover and discuss possible solutions that could reduce the rate of turnover within the short-term. With an R^2 greater than .90 and a null hypothesis that was rejected (that is, the regression coefficient was significantly greater than zero), the determinant was included in the final analytical equation. Alternatively, with an R^2 greater than .90 and a failure to reject the null hypothesis, the determinant being analyzed was considered to be insignificant in the decision to leave the service. Obviously this determinant was not included in the final derivative of the analytical equation.

Aptness of the Regression Model

Residual analysis of the multiple regression model was used as the examination of the aptness of the model.

". . . residuals are analyzed for randomness, normality,

constancy of error variance, and appropriateness of the regression function [21:500]." The residuals were derived from the SPSS output.

Confidence Interval

Inferential statistics is not an exact science. Rather, the findings are approximate within a confidence interval that may be calculated as a function of the expected value of the dependent variable, the desired probability of certainty, and the standard error of the estimated average. Using these values, upper and lower confidence limits were calculated. These limits, and the confidence coefficient of 95 percent, were the basis for the analysis of a change in the dependent variable that results from a change in only one of the independent variables (21:500-505).

CHAPTER III

DATA ANALYSIS RESULTS

Introduction

The material presented in Chapter II provided the operational definitions and the methodology used in the data analysis. This chapter presents the results of the analysis. Discussion and evaluation were not presented in this chapter; rather were reserved for Chapter IV.

Data Analysis

Multiple Regression

As previously stated, the computerized Statistical Package for the Social Sciences (SPSS) was used to accomplish the analysis of the survey data. The subroutines utilized were *Compute, for grouping survey questions into aggregate determinants, and Regression for statistical methodology and model verification.

Model Development and Verification

The ten determinants defined in this thesis were arithmetically aggregated by the *Compute subroutine. The multivariate linear regression model, as initially developed, included these ten determinants and the intervening variable, opportunity. This model expressed as an equation

is at Appendix D. The R^2 for this model is .98346 which is greater than the required .90; therefore, a search for additional determinants was not conducted.

The computer output for this regression analysis is condensed and summarized in Table 4. The analyses for each of the statistical hypotheses are presented in the text of the following paragraphs. All hypotheses were tested against a critical F-value at the .05 level of significance. If significant, the determinant was included in subsequent models.

Test of Hypothesis 1.

$$H_0: B_1 = 0$$

$$H_A: B_1 \neq 0$$

The computed F-value for Tenure, 10.315, is greater than the required, critical F-value of 1.95. Decision: Reject the null hypothesis. This implies that the partial coefficient for Tenure ($B_1 = .31$) is statistically different than zero. This determinant was included in subsequent analyses.

Test of Hypothesis 2.

$$H_0: B_2 = 0$$

$$H_A: B_2 \neq 0$$

The computed F-value for Pay and Benefits, 1.439, is less than the required critical F-value of 1.95.

TABLE 4
REGRESSION ANALYSIS WITH CAREER INTENT (Q-12) AS THE DEPENDENT VARIABLE

Variable Name	Determinant	B value	F
Tenure	Tenure	.311	10.315
Pay	Pay and Benefits	-.229	1.439
Promote	Promotion	.025	.003
Peer	Peer Group Integration	.304	3.246
Role	Role Clarity	.140	.728
JobAnt	Job Autonomy and Responsibility	.025	.003
Leader	Satisfaction with Supervisory Style	-.139	.971
PastAss	Past Assignments	.331	10.928
AssPol	Assignment Policies	.654	27.091
Family	Family Considerations	-.572	5.652
CivOpp	Civilian Job Opportunity	-.344	6.173

Decision: Fail to reject the null hypothesis. This implies that the partial coefficient for Pay and Benefits ($B = -.23$) is not statistically different than zero. This determinant was not included in subsequent analyses.

Test of Hypothesis 3.

$$H_0: B_3 = 0$$

$$H_A: B_3 \neq 0$$

The computed F-value for Promote, 0.003, is less than the required, critical F-value of 1.95. Decision: Fail to reject the null hypothesis. This implies that the partial coefficient for Promote ($B_3 = .025$) is not statistically different than zero. This determinant was not included in subsequent analyses.

Test of Hypothesis 4.

$$H_0: B_4 = 0$$

$$H_A: B_4 \neq 0$$

The computed F-value for Peer, 3.246, is greater than the required, critical F-value of 1.95. Decision: Reject the null hypothesis. This implies that the partial coefficient for Peer ($B_4 = .01$) is statistically different than zero. This determinant was included in subsequent analyses.

Test of Hypothesis 5.

$$H_0: B_5 = 0$$

$$H_A: B_5 \neq 0$$

The computed F-value for Role, 0.728, is less than the required, critical F-value of 1.95. Decision: Fail to reject the null hypothesis. This implies that the partial coefficient for Role ($B_5 = .14$) is not statistically different than zero. This determinant was not included in subsequent analyses.

Test of Hypothesis 6.

$$H_0: B_6 = 0$$

$$H_A: B_6 \neq 0$$

The computed F-value for JobAut, 0.003, is less than the required, critical value of 1.95. Decision: Fail to reject the null hypothesis. This implies that the partial coefficient for JobAut ($B_6 = .025$) is not statistically different than zero. This determinant was not included in subsequent analyses.

Test of Hypothesis 7.

$$H_0: B_7 = 0$$

$$H_A: B_7 \neq 0$$

The computed F-value for Leader, 0.971, is less than the required, critical F-value of 1.95. Decision: Fail to reject the null hypothesis. This implies that the

partial coefficient for Leader ($B_7 = -.14$) is not statistically different than zero. This determinant was not included in subsequent analyses.

Test of Hypothesis 8.

$$H_0: B_8 = 0$$

$$H_A: B_8 \neq 0$$

The computed F-value for PastAss, 10.928, is greater than the required, critical F-value of 1.95. Decision: Reject the null hypothesis. This implies that the partial coefficient for PastAss ($B_8 = .331$) is statistically different than zero. This determinant was included in subsequent analyses.

Test of Hypothesis 9.

$$H_0: B_9 = 0$$

$$H_A: B_9 \neq 0$$

The computed F-value for AssPol, 27.091, is greater than the required, critical F-value of 1.95. Decision: Reject the null hypothesis. This implies that the partial coefficient for AssPol ($B_9 = .654$) is statistically different than zero. This determinant was included in subsequent analyses.

Test of Hypothesis 10.

$$H_0: B_{10} = 0$$

$$H_A: B_{10} \neq 0$$

The computed F-value for Family, 5.652, is greater than the required, critical F-value of 1.95. Decision: Reject the null hypothesis. This implies that the partial coefficient for Family ($B_{10} = -.572$) is statistically different than zero. This determinant was included in subsequent analyses.

Test of Hypothesis 11.

$$H_0: B_{11} = 0$$

$$H_A: B_{11} \neq 0$$

The computed F-value for CivOpp, 6.173, is greater than the required, critical F-value of 1.95. Decision: Reject the null hypothesis. This implies that the partial coefficient for CivOpp ($B_{11} = -.34$) is statistically different than zero. This determinant was included in subsequent analyses.

Interim Summary

As witnessed by the preceding hypothesis testing, the initial, multivariate model was adequately descriptive of the variance in the dependent variable ($R^2 = .98346$). In addition, six of the determinants were statistically significant to be included in the next computerized analysis. Five of the determinants were not statistically significant and were not included in subsequent regression analyses. The six statistically significant determinants

were AssPol, PastAss, CivOpp, Tenure, Family, and Peer. These six determinants became the independent variables of the "deduced model."

"Deduced Model" Verification

The "deduced model" is presented in equation form at Appendix E. The verification of this model followed the methodology outlined in Chapter II and accomplished in the previous part of this chapter. There were only six independent variables; therefore, only six statistical hypotheses were tested for significance. Each hypothesis was tested against the critical F-value of 2.20 at the .05 level of significance. The applicable degrees of freedom for the numerator was six and for the denominator was 87 (4:82).

The coefficient of determination for the "deduced model" was greater than the desired value of .90 ($R^2 = .9829$). The deletion of five determinants reduced the R^2 from .98346 to .9829 which confirmed the decision to modify the model by eliminating the "insignificant determinants."

The computer output for this regression analysis is condensed and summarized in Table 5. The analyses for each of the statistical hypotheses are also presented in the text of the following paragraphs.

TABLE 5

REGRESSION ANALYSIS WITH CAREER INTENT (Q-12) AS THE DEPENDENT VARIABLE--
"DEDUCED MODEL"

Variable Name	Determinant	B	F
Tenure	Tenure	0.239	10.257
Peer	Peer Group Integration	0.331	4.174
PastAss	Past Assignments	0.274	9.181
AssPol	Assignment Policies	0.499	66.758
Family	Family Considerations	-0.622	7.416
CivOpp	Civilian Job Opportunity	-0.269	19.342

Test of Hypothesis 1.

$$H_0: B_1 = 0$$

$$H_A: B_1 \neq 0$$

The computed F-value for Tenure, 10.257, is greater than the required critical F-value of 2.20. Decision: Reject the null hypothesis. This implies that the partial coefficient for Tenure ($B_1 = .18$) is statistically different than zero. This determinant was included in the final model.

Test of Hypothesis 2.

$$H_0: B_2 = 0$$

$$H_A: B_2 \neq 0$$

The computed F-value for Peer, 4.174, is greater than the required critical F-value of 2.20. Decision: Reject the null hypothesis. This implies that the partial coefficient for Peer ($B_2 = .33$) is statistically different than zero. This determinant was included in the final model.

Test of Hypothesis 3.

$$H_0: B_3 = 0$$

$$H_A: B_3 \neq 0$$

The computed F-value for PastAss, 9.181, is greater than the required critical F-value of 2.20. Decision: Reject the null hypothesis. This implies that the partial

coefficient for PastAss ($B_3 = .27$) is statistically different than zero. This determinant was included in the final model.

Test of Hypothesis 4.

$$H_0: B_4 = 0$$

$$H_A: B_4 \neq 0$$

The computed F-value for AssPol, 66.758, is greater than the required critical F-value of 2.20. Decision: Reject the null hypothesis. This implies that the partial coefficient for AssPol ($B_4 = .499$) is statistically different than zero. This determinant was included in the final model.

Test of Hypothesis 5.

$$H_0: B_5 = 0$$

$$H_A: B_5 \neq 0$$

The computed F-value for Family, 7.416, is greater than the required critical F-value of 2.20. Decision: Reject the null hypothesis. This implies that the partial coefficient for Family ($B_5 = -.62$) is statistically different than zero. This determinant was included in the final model.

Test of Hypothesis 6.

$$H_0: B_6 = 0$$

$$H_A: B_6 \neq 0$$

The computed F-value for CivOpp, 19.342, is greater than the required critical F-value of 2.20. Decision: Reject the null hypothesis. This implies that the partial coefficient for CivOpp ($B_6 = -.269$) is statistically different than zero. This determinant was included in the final model.

Interim Summary

As witnessed by the preceding hypothesis testing, the "deduced model" was adequately descriptive of the variance in the dependent variable ($R^2 = .9829$). Additionally, all six of the determinants were statistically significant. The "deduced model" became the final model that satisfactorily describes the relationship of the dependent variable and the "significant" independent variables.

As evidenced by the computer output in Table 5, AssPol is the most significant determinant in this model. Not only did this determinant enter the step-wise regression analysis first, but AssPol also has the largest direct relationship with career intention (Q-12).

Aptness of the Regression Model

Analyses of the residuals obtained from the SPSS subroutine Regression was accomplished. The analyses revealed that the residuals were not a significant

challenge to the appropriateness of the multiple, linear regression model.

Confidence Interval

The computation of a 95 percent confidence interval of the expected value of the career intention (Q-12) provided the robustness and generalizeability to the analysis. Using a t value of 1.99 ($t_{1-\alpha/2; n-p}$) the lower limit was 3.46 and the upper limit was 3.69. These values represent an increase of 12 to 19 percentage points when assignment policies were increased by a unit value and all other independent values remained constant. Therefore, the inferential conclusion drawn was that, with 95 percent confidence, a positive change in the assignment policy would have influenced between 11 and 18 pilots of the 94 in the sample to remain on active duty. These inferences compare favorably with the results of the responses to Question 17 of the survey.

"When first deciding whether to separate, if you could have received the ASSIGNMENT you MOST WANTED, would you have remained in the Air Force"? [See Appendix B.]

The data revealed 23 percent (21 pilots) of the responses were item A; "Yes, definitely."

CHAPTER IV

DISCUSSIONS, RECOMMENDATION, AND CONCLUSIONS

Introduction

"Our objective is to retain 59% of our pilots . . . during these critical years of service [8:2]."

The critical years of service referred to by Joseph C. Zengerle, Assistant Secretary of the Air Force for Manpower, Reserve Affairs, and Installation, are the sixth to eleventh years. Given this goal of 59 percent retention of pilots in the six to eleven year group, the present retention rate of 23 percent leaves a 36 percentage point shortfall in the desired retention. The challenge for our personnel system, or our Air Force as a whole, is to overcome that 36 percentage point deficit in the retention of these pilots.

The analysis section of this thesis has indicated a 19 percent increase in retention could be attained with a positive change in assignment policies. But just how does one measure the cost of such a proposed change? In fact, how does one design a "positive" change to assignment policies? This chapter will attempt to answer those two questions.

Systems Approach

With the systems management approach to decision making, the Air Force has become increasingly aware of the concept of total systems costs. The problem of pilot retention should be viewed from just such a systematic approach in the determination of costs. Traditionally, the personnel function is not considered a task within a logistical system; logistics is more frequently associated with supply, maintenance, transportation, and procurement functions. However, because of the logic, clarity, and flexibility of the logistic system concept, the personnel system, particularly the management of pilot resources, will be structured similarly to the logistical system.

Specifically, the objective of a logistical system is to provide the desired level of support at the least possible total expenditure of resources. In a logistical system, resources equate to men, money, and material. Given the stated goal of 59 percent retention of pilots in the six to eleven year group, the objective of a "personnel logistic system" is to achieve that goal at the least total cost.

Determining the least total cost can be difficult if not sometimes impossible. However, by dividing the overall problem into separate independent problems, the task is somewhat easier and more manageable. Determining all the factors included in the total cost, and equating men, money, and material in comparable terms, comprise two separate

independent problems to help solve the pilot retention problem. The answers to these problems lie in the use of a logistics system model to structure and define the elements of cost and the use of human resource accounting methods to equate the expenditure of resources--men, money, and material.

Logistics Model

The purpose of logistics is to create and sustain military forces in support of national policies and objectives (24:48). Logistics has four independent processes which are needs determination, acquisition, distribution, and conservation. Each one of the processes is a subsystem within and unto itself. That is, each such subsystem has inputs and outputs. The characteristic of a system is that the output of one subsystem is the input to the next (see Figure 3).

In the case of pilots, the Air Staff has determined the need for a given number of pilots. That need is the output of the first process and the input into the second process, acquisition. The personnel system must then recruit, select, and train qualified personnel to become pilot resources. The output of the acquisition process is a qualified pilot, a human resource. This resource is the input to the distribution process which must distribute the pilot resources among the various weapons systems and bases

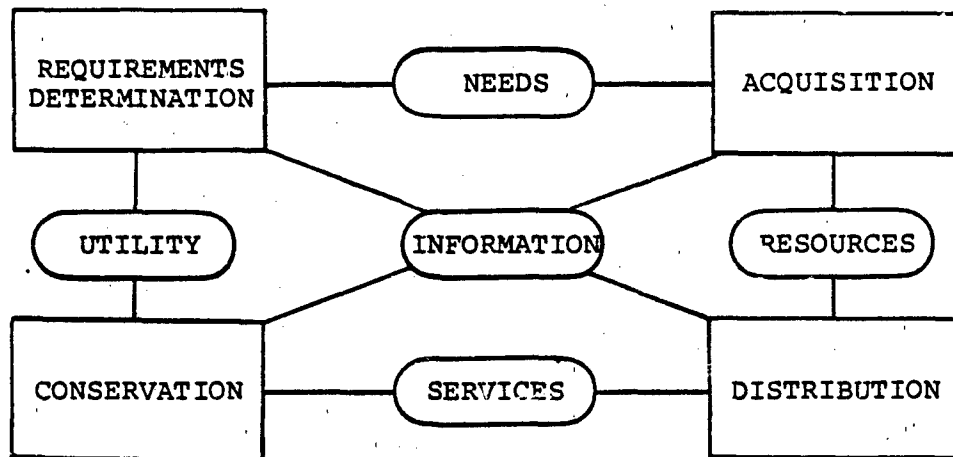


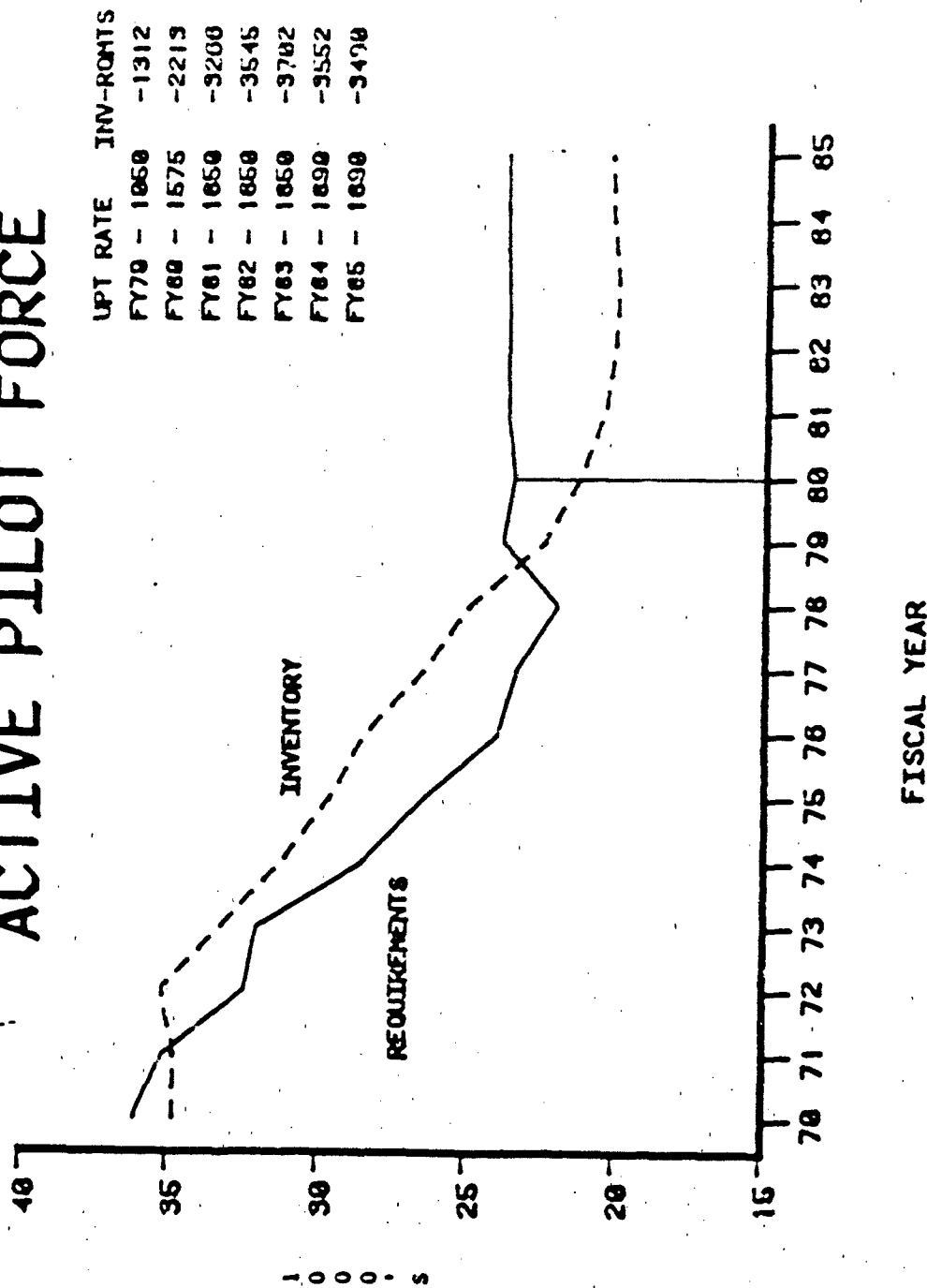
Fig. 3. Logistics Systems Model

throughout the world. Once these pilot resources are matched with weapons systems and bases they provide a service or capability which supports our national objectives. This service or capability is the input to the conservation process which must maintain the utility or value of these pilots. If this is done, the utility of those pilot resources is maintained within the system. If the utility is not maintained, the needs determination process will generate a requirement to replace that resource with the acquisition of a new pilot resource, and so on. This logistics model is the framework which will be used to determine the total cost of a personnel logistic system from an Air Force point of view. Each process of the logistics model will be examined in detail to ascertain the cost associated with that process.

Requirements Determination. "Requirements determination is the specific identification of needs and determination of what will satisfy them [24:50]." This implies that specifications are required to identify the prerequisites required to satisfy certain of the requirements. The Air Staff has specified the requirements for the total number of pilots to be just under 25,000 (see Figure 4). However, a total number of pilots is not the only requirement. Experienced pilots are needed to provide the middle management strength to today's operational units and the leadership of tomorrow's Air Force. As previously mentioned, a stated retention goal of 59 percent has been set for pilots in the middle level management area. So, the requirement exists for not only a total number of pilots but for a percentage of that total number to be experienced pilots.

The definition of an experienced pilot varies greatly among the commands within the Air Force. As it is used here, it generally refers to pilots with more than five years of rated service and 1500 hours of flying time. This requirement satisfies most command requirements for instructor pilot minimum qualifications. An experienced pilot is much more valuable to the Air Force than just five years service and 1500 flying hours, however. How do you place a value on a pilot with a year's combat experience?

ACTIVE PILOT FORCE



SOURCE: RONTIS-USA FIVE FY81-84 POS - 21MAY79
INV-AF/AFPP/JULY78-JUNE79 CONTINUATION RATES

Fig. 4. Active Pilot Force (14)

How can you replace that valuable experience if a pilot leaves the service?

Acquisition. "Acquisition is the process through which we procure goods and services and other resources to meet determined requirements [24:50]." In this case, the services of pilots are manpower resources which are acquired through the expenditure of money and material resources. The cost to train a pilot includes not only the cost of Undergraduate Pilot Training (UPT) but can also include the cost to send the pilot candidate through one of the three commissioning sources of Reserve Officer Training Corps (ROTC), Officer Training School (OTS), or United States Air Force Academy (USAFA). For the purpose of this thesis, the cost of commissioning was not considered into the formula which was developed and which is presented later in this chapter. However, if a candidate is recruited into the service specifically to be a pilot, then we believe this cost should be a consideration.

The personnel function within the Air Force is perfectly capable of acquiring the total number of pilots needed to meet the stated requirement. However, budget cuts, UPT quotas, and so forth, have limited the acquisition of new pilots to 1000 pilots per year for the past several years. This UPT output has been increased recently and is forecast to go even higher. Yet, the shortage in the pilot

inventory remains. As depicted in Figure 4 the shortage is predicted to be approximately 3500 pilots by FY 82. This shortfall is due to the exodus of experienced pilots.

The experienced pilot is one resource the personnel function cannot acquire. In the case of extreme emergencies, the President could direct an active duty recall which would balance the deficit. However, this is not likely for now. Since the experienced pilot cannot be replaced, he/she is a resource which must be retained and conserved by the system. Again quoting General Davis,

. . . That loss will eventually affect our senior leadership ranks. We can put someone into a trainer cockpit and have that person flying a mission in a year or two, but we can't replace 11 years of operational experience and skills in any time short of 11 years [7:8].

The cost associated with this acquisition process will be examined only at a conceptual level because the determination of actual costs was beyond the scope of this thesis. The cost associated with this acquisition process will be referred to simply as "A" where A represents the cost to send an officer through UPT. This conceptual value of A will be used later in this chapter to show the relational expression of total systems cost.

Distribution. "Distribution is the process of moving the things procured to their place of need or use [24:51]." In the context of this thesis, it represents the process in which AFMPC assigns the pilot resources to

the various weapons systems and geographic locations throughout the world. Within the traditional definition of distribution,

Decisions must be made, based upon the requirements determination, and the operational planning, about . . . the priority with which material should be handled, where it will be stored (if at all), and how it will be handled [25:51].

This definition has direct application to the manner in which personnel are, or should be, handled by the distribution process. Each aspect of this definition will now be examined.

As previously discussed in the requirements determination process, the AF has a need for a balance of experienced and inexperienced pilots. This balance is approximately a 60/40 mix of experienced pilots versus inexperienced pilots. Additionally, due to operational planning considerations, the Air Force has the requirement to balance that experience among the various weapon systems. That is, experience is needed within each type of weapon system from the newest F-16 aircraft to the older B-52 and KC-135 aircraft. This truly represents the most difficult problem facing Air Force personnel planners--how to maintain the desired level of experience across the board in all our major weapon systems. Stated differently, how should the Air Force retain its most valuable manpower resource?

The distribution process which handles high value material items does so by priority handling and management.

As stated in the traditional definition of distribution, decisions must be based on the priority with which material should be handled, and how it will be handled. Otherwise, known as Pareto's Law, this concept simply means that management should spend 80 percent of its time managing 20 percent of its inventory items. The implication, of course, is that the 20 percent of the inventory represents the most valuable, high cost items in the inventory. Perhaps the pilot assignment system should be managed in a similar manner. If the experienced pilot cannot be replaced, nor acquired "off the shelf," then he/she is truly a valuable resource deserving priority handling and management. Just how an experienced pilot should be managed in a personnel assignment system is the heart of the recommendation discussed later in this chapter.

The final decision which must be made regarding the distribution of pilots is where they will be stored (if at all). The present rated supplement is the program which "stores" pilot resources. This program is a very effective program in which the pilot resources can be "stockpiled" for future use. The authors believe the rated supplement is an absolutely essential element in the effective, efficient management of pilot resources.

The costs associated with this distribution process will be expressed in conceptual terms by the letter "D". D represents the summation of all permanent change

of station (PCS) cost and training costs associated with qualifying a pilot resource in one of the various weapon systems. For example, if a UPT graduate is assigned to a KC-135 unit at Carswell AFB, Texas, the distribution cost includes the PCS cost from the UPT base to Carswell AFB and the temporary duty and training costs associated with the Combat Crew Training School at Castle AFB, California. If a currently qualified KC-135 pilot is reassigned from Minot AFB, North Dakota, to Travis AFB, California, the distribution cost is only the PCS cost of the move from Minot AFB to Travis AFB.

The present assignment system attempts to minimize D by the management of pilots by weapon system identity. The advantage of this system is that it minimizes training costs and retains experience within a given weapon system. Unfortunately, as the Exit Survey results have shown, these assignment policies are the primary reason why pilots are leaving the Air Force in record numbers. For this reason, the authors believe an additional cost element should be considered. This cost element, which will be referred to as "E", for experience, represents the resources lost if a pilot elects to leave the Air Force. This cost element could simply be a cumulative total of training costs spent on an individual, multiplied by a factor for combat tours, professional military education, education, or other considerations important to the Air Force. In this way, the

personnel system could identify those human resources which deserve the priority handling and management mentioned earlier. Additionally, the quantification of E would add significantly to the total cost of the personnel system if these resources were lost to the Air Force. This would serve to represent the true cost of an assignment system whereas the present assignment system does not consider the loss of a pilot to be a *financial* loss.

Conservation. "Conservation is the process of maintaining and improving resources [24:52]." In the context of this thesis, conservation of pilot resources has two separate aspects. First, conservation can imply that the pilot himself must be retained within the system. The second consideration involves the retention of pilot skills. Conservation of pilot skills is accomplished by ground and flight training as part of the normal proficiency training program. For example, once a pilot is qualified in an F-4, he/she must fly periodically and be trained continuously to maintain the degree of proficiency required to successfully accomplish a given mission. Therefore, all the costs involved to keep a pilot proficient, once fully qualified, is the first part of the conservation costs.

The second part is those costs necessary to keep a pilot in the Air Force system. These costs include the quality of life issues necessary to make and keep the

Air Force way of life attractive enough to prevent Air Force pilots from voluntarily leaving the service. These areas include pay and benefits, tenure policies, promotion policies, family considerations, role clarity, and so forth. The results of the Exit Survey indicate that although such factors as pay are important considerations, they are not the most important factors which have caused pilots to leave duty. Additionally, this area has received the focus of most attention given to pilot retention problems.

Some of the many efforts underway to ease the retention problem are the proposed 25 percent increase in flight pay, the reduction in the number of additional duties required, and the suspension of involuntary separation of pilots from active duty. Additionally, the controlled OER system has been abolished, and Major Air Commands have taken steps to put more authority in the hands of squadron commanders. These are all very important and necessary actions which will do much to improve the Air Force way of life. Unfortunately, none of these address the most significant cause of pilot turnover--assignment policies. The costs associated with these quality of life issues represent the other portion of the costs associated with the conservation process. The total costs of the conservation process are represented by the theoretical expression "C".

The cost associated with C is only partially controllable by the Air Force. The amount of training and

flying each pilot receives is determined by the Air Force. For example, each MAJCOM employs a system in which the most inexperienced pilots receive the most training and flying hour allocations and the most experienced pilots receive a lesser amount of training. This determination of experience or proficiency levels is a function of the MAJCOM and, therefore, this aspect of conservation cost is at least somewhat controllable within the Air Force.

The portion of conservation costs associated with the quality of life is not directly controllable by the Air Force. Increases to flight pay, or housing allowance, or promotion policies, and so on, are all subject to congressional approval and funding. The time lag in this process is not only great but also unpredictable. The extent of Air Force control is limited to the political pressure or convincing argument presented to the congressional and executive branches.

The output of the conservation process is pilot utility. That is, the Air Force can confidently use the skills of a pilot to perform a given mission anywhere, anytime, under any circumstance. The conservation process is necessary to provide that utility, for without it, the pilot's skills may be rusty, his/her knowledge less than perfect, or his/her aggressive nature less than adequate.

Total Cost

The question asked earlier in this chapter was: How much does it cost to retain a pilot? It is now possible to address this question since all the cost factors have been identified through the logistics system model. Additionally, the quantification of the experience factor allows a meaningful comparison of the total resources consumed in terms of men, money, and materials. Stated in the conceptual framework, the cost to train a pilot under the present philosophy would be represented by the formula when total system cost = $A+D+C$. However, this does not represent the loss to the Air Force if a pilot leaves the Air Force nor the actual least cost to the system. The loss would be equal to $A+D+C+E$. The authors therefore contend that the assignment system should be managed in such a way that the total cost is represented by $A+D+C+E$. This is the resource cost which must be minimized; the total system cost. The authors believe the pilot retention problem, and its associated total resource cost, is not being viewed from this total system cost approach. Instead, the Air Force attempts to minimize acquisition costs, and minimize conservation costs, and does not measure experience costs. The result is a total system cost which is greater than the combined sum of all the individual minimized costs.

Assignment Policy

The question therefore remains, "How do you design a positive change in assignment policy?" AFMPC has done much in the past year to improve personal inputs into the assignment process. The Officer Personnel Assignment Information Directory published in November 1979 is a single source document for all assignment information. This pamphlet is a great improvement and aid to the individual officer seeking assignment information. AFMPC has also published the Commander Information Brochure (29) in an effort to keep the commanders and the individuals informed of current developments in the personnel area. Finally, AFMPC has conducted a number of field trips and briefings to all the major flying organizations to personally contact the individual flying officers. These are all significant improvements to the assignment process within the existing framework. However, as indicated by the results of the Exit Survey, the *existing framework* is the major problem area! What is the existing framework?

Assignment Framework. The existing framework for pilot assignments is the weapon system group concept. The rated force is divided into ten weapon system groups. These include: fighter, recce (reconnaissance), interceptor, trainer, bomber, tanker, strategic airlift, tactical airlift, helicopter, and mission support.

These groups form the basis for the current management of all rated officers. They are the principal players in the decision-making process known as Rated Distribution and Training Management [14:3-1].

Based on these weapon systems groups, the AFMPC attempts to match individual preferences listed on the AF Form 90 (see Appendix A). Herein lies the crux of the problem. As stated in the AID, "Tell us your desires and give us realistic options so we can match your assignment and personal desires [14:2-9]." "Realistic" is the key word. The message to the field is that realistic means a choice within your weapon system grouping. For example, if you are an KC-135 pilot, then realistic choices (as listed by the AID) include KC-135, EC-135, RC-135, C-135, E-3P, and E-4 aircraft. If a KC-135 pilot were to put down any aircraft other than one of those previously listed, it would not be considered realistic unless it fit into one of the designated "crossflow" programs. The major fallacy of this system is that the individual has little, if any, choice in which weapon system grouping he will be placed.

The "critical first assignment" is often talked about among pilots. This simply means that whichever category you are placed in for your first assignment is the category you will stay in. Assignments out of UPT have undergone numerous changes over the years ranging from a choice of assignments by ranking in the class to a purely random assignment of aircraft. The Air Force has expended

considerable effort to match individual preference of UPT graduates with needs of the Air Force. The authors believe this is not the optimal time to match individual preferences with AF needs. We believe this is analogous to forcing a career decision on a high school graduate. The UPT graduate is not mature enough as a pilot, nor does he/she have enough valid information, to make a career choice even if he/she were guaranteed the assignment of choice. The type of information presented the UPT student is without doubt biased toward the desirability of being a "fighter pilot." However, after several years of maturation as a pilot, and after more valid exchange of information with friends in various weapon systems, a pilot is more capable to make a career decision. For these reasons, the authors propose the following recommendation.

Recommendation

At the end of a pilot's *first* active duty service commitment, typically the sixth year of service, the Air Force should guarantee a pilot a one-time only career choice of one of the following two assignment options.

Option 1. If you are not satisfied in your current weapon system group, select the weapon system group of your choice. Aircraft within the weapon system groups are listed in the AID and the actual aircraft and geographical location of assignment will be made by AFMPC.

Option 2. If you are currently satisfied with your weapon system group, pick the geographical area of your choice. Actual assignment to a base within that geographical area will be made by AFMPC.

Recommendation Benefits

The authors believe this to be a reasonable and justifiable assignment policy change based on the following reasons. First, it can be implemented within the existing structure of the AFMPC. The authors believe the Rated Distribution and Training Management system is a very sound and logical system provided the individual is satisfied with the weapon system group he/she is managed within. Second, the Air Force can implement this policy change entirely within the boundaries of the Air Force system. No outside agency approval would be required. Additionally, this policy could be implemented immediately.

The benefits which would accrue to the Air Force would be in three main areas: economic, leadership, and ability to meet national objectives.

Economic. Under a total system cost concept where all men, money and material resources are considered, the recommended policy would result in an economic benefit to the Air Force. The distribution cost would undoubtedly go up but acquisition costs would go down because of increased retention. The biggest factor, however, would be the

savings of experience which (in a human resource accounting system) is equated with money. Although the economic savings possible under this recommended policy are potentially significant, this economic aspect is considered the least important benefit of this policy.

Leadership. The recommended policy has significant leadership benefits. Because this policy is aimed at retaining the experienced middle management personnel, the potential benefit is for the future leadership of the Air Force. The pilots in the six to eleven year group who are retained today are not only the commanders of tomorrow's operational units, but nonoperational units as well. This policy would provide for a broadened base of experience for this future leadership. The authors believe a system which breeds specialists, as the present system does, is not as effective as one which provides for broadened experience. The general officers today normally have a broad background of aircraft experience whereas today's RDTM would create only bomber, or fighter, or transport types. The recommended policy change would therefore provide for this broadened base and enhance the future leadership potential of the Air Force. This is also a significant benefit but, once again, it is not the most significant.

National Objectives. As stated in AFM 1-1,

"The mission of the United States Air Force is to prepare our forces to fight to preserve the security and freedom of the people of the United States [15:v]." The most important part of our aerospace forces is our people. As stated by Major General Jeanne M. Holm,

The major challenge and concern of the armed forces in the period of the 70's and beyond are, and will continue to be in the field of personnel. You can devise all of the technologically sophisticated systems in the world, but without people in the quality and quantity required to operate these systems, to fix them and to control them, you are nowhere [15:3-9].

The authors believe the key elements of this statement are the quality and quantity of people required.

As shown previously in Figure 4, the Air Force is not retaining the quantity and quality of pilots needed to meet stated requirements. As instructors and as evaluators, the authors have seen the flying hour and experience requirements for upgrade reduced out of necessity so that the required positions to be manned could be filled. Instructors at the CCTS and RTU units were previously the most highly experienced and capable instructor pilots in that weapon system. Now, pilots who would previously have been unqualified even to be an instructor are now instructors at the CCTS and RTU bases. The result, which is only noticeable over a long period of time, is that Air Force pilots are not as well trained or experienced as they once were. The quality is not as good as it was or should be.

The authors have therefore concluded that unless something is done soon, the forces which must "fight to preserve the security and freedom of the United States" will be neither of the quality or quantity required to accomplish the mission. This is the most serious aspect of the pilot retention problem! We propose that our recommendation is not only beneficial from an economic and leadership perspective but it will also enhance our capability to achieve our national objectives.

Conclusions

This research effort has sought to determine the cause or causes of the current pilot exodus using traditional problem-solving techniques. Borrowing from the ideas of previous authors and research teams, a model of turnover was adopted as the structure for this research effort. The United States Air Force Officer Exit Survey, which was designed and administered by the Air Force Military Personnel Center, was used as the data base. The first quarter results from 1979, which consisted of only 94 pilot respondents, provided the basis for our recommendation, and this final conclusion.

As with any problem dealing with the human element, no single factor could be identified as "the" cause of the pilot exodus. Therefore, the authors have identified the one factor which was the most statistically significant

factor determining the turnover of pilots in the six to eleven year group within the sample of 94 pilots who returned surveys during the first quarter of 1979. This factor was identified as assignment policies. Responses to the survey indicated that between 23 and 47 percent of the 94 pilots who left the service would have stayed in had they been able to receive the assignment of their choice.

Based on this response, the authors performed a multiple linear regression analysis to predict the effects of a proposed change to the current assignment policies. This analysis indicated that a 19 percent increase in retention could have been realized if the proposed policy would have been available to the 94 pilots in the Exit Survey.

Because of the small sample size available for this research, it is not possible to make a statistical prediction about the effects the proposed policy change might have on future retention, nor is it even possible to conclusively say that assignment policy is the most significant factor causing the turnover of all pilots who have left the service. Our conclusions and predictions are limited to the small sample of 94 pilots who answered this survey in early 1979. However, this small sample size does not detract from the value of this research effort.

The simple fact of the matter is--what other choices are available to improve retention at this time?

Even if pay, for example, had been the most significant determinant of turnover in our research, what can Air Force leadership do about increasing that pay? The authors believe that the Air Force leadership has done just about as much as is humanly possible; Congress has simply not elected to increase our pay. Therefore, Air Force leadership should deal with matters that are within their own authority to change. This thesis has determined that assignment policy is the area most ripe for improved retention; an area which can be dealt with entirely within Air Force channels.

The recommendation made in this thesis is based on the simple premise that a pilot who is happy in his work will stay in the Air Force. This is not universally true, of course, but the majority of Air Force pilots would endure some inequities in pay, benefits, or other variables, if they were happy in their work and could expect to continue to be happy. Unfortunately, the present Air Force assignment policies do not provide the flexibility necessary to insure this personal satisfaction. True participative management does not exist in the RDTM system.

The authors believe this thesis has indeed determined the most significant cause of the pilot exodus problem. Additionally, we have recommended a solution which we feel would improve retention by a significant amount. We have attempted to describe the cost of our recommendation in conceptual terms and we are convinced that if our

recommendation were implemented the savings would be significant.

Problem solving and decision making are indeed the two separate steps necessary for the solution to the pilot exodus problem. The problem has now been solved; the decision must now be made!

APPENDICES

APPENDIX A

AF FORM 90

OFFICER CAREER OBJECTIVE STATEMENT (Lt Col and below) THIS FORM IS AFFECTED BY THE PRIVACY ACT OF 1974 - See reverse)						Use reverse for remarks.
1. GRADE	2. SSAN	3. NAME (Last, First, Middle Initial)			4. DATE 17 & 18	
I. IMMEDIATE ASSIGNMENT OBJECTIVES						
A. CONUS		DAFSC	BASE	DUTY TITLE OR POSITION AND LEVEL		
FIRST PREFERENCE		5.	6.	7.		
SECOND PREFERENCE		8.	9.	10.		
THIRD PREFERENCE		11.	12.	13.		
B. OVERSEA		DAFSC	COUNTRY OR AREA	TOUR LENGTH	19. OVERSEA VOLUNTEER STATUS (Check only one)	
FIRST PREFERENCE		14.	15.	16.	<input type="checkbox"/> NONVOLUNTEER <input type="checkbox"/> VOLUNTEER <input type="checkbox"/> COT <input type="checkbox"/> EXTENDED TOUR <input type="checkbox"/> ANY SHORT TOUR <input type="checkbox"/> ANY LONG TOUR <input type="checkbox"/> WORLDWIDE <input type="checkbox"/> NON-CONUS RESIDENT	
SECOND PREFERENCE		17.	18.	19.		
C. MAJCOM/GEOGRAPHIC PREFERENCES SHOULD YOUR BASE OR OVERSEA VOLUNTEER PREFERENCES BE UNAVAILABLE						
21. CONUS STATE		22. 1ST CONUS AREA		23. 2ND CONUS AREA		MAJOR COMMAND
				24. 1ST		25. 2ND
						26. 3RD
II. SPECIAL ASSIGNMENT PREFERENCES						
A. CAREER BROADENING (Complete only if you desire this assignment next)						
ASSIGNMENT		DAFSC	DUTY TITLE OR POSITION AND LEVEL			
FIRST PREFERENCE		27.	28.			
SECOND PREFERENCE		29.	30.			
B. RETRAINING (Complete if you want to leave your current AFSC permanently)						
DAFSC		31. FIRST PREFERENCE		32. SECOND PREFERENCE		33. THIRD PREFERENCE
C. RATED SUPPLEMENT: THIS INDICATES PREFERENCE ONLY AND DOES NOT CONSTITUTE A VOLUNTEER STATEMENT. TO VOLUNTEER COMPLETE SECTION IIA ABOVE.						
ASSIGNMENT		DAFSC	DUTY TITLE OR POSITION AND LEVEL			
FIRST PREFERENCE		34.	35.			
SECOND PREFERENCE		36.	37.			
D. SPECIAL DUTY APPLICATION: DO NOT COMPLETE THESE BLOCKS UNLESS YOU ARE A VOLUNTEER FOR A SDA ON YOUR NEXT ASSIGNMENT AND MEET THE ELIGIBILITY CRITERIA IN AFR 36-20, CHAPTER 5.						
38. TYPE		39. DATE DESIRED		40. LOCATION/POSITION		
III. LONG RANGE OBJECTIVES						
A. NEXT ASSIGNMENT PLUS ONE						
41. DAFSC		42. DUTY TITLE OR POSITION			43. MAJCOM/LEVEL/LOCATION ETC.	
B. ACADEMIC AND PROFESSIONAL MILITARY OBJECTIVES						
	ACADEMIC MAJOR OR COURSE		DEGREE	STUDY METHOD	ENTRY DATE	COMPLETION DATE
ACADEMIC	44.		45.	46.	47.	48.
PME	49.			50.	51.	52.
IV. CURRENT ASSIGNMENT INFORMATION						
VOLUNTEER STATUS FOR PCS MOVE WITHIN CONUS						
<input type="checkbox"/> VOLUNTEER <input type="checkbox"/> NO PREFERENCE <input type="checkbox"/> DESIRE TO REMAIN AT CURRENT STATION						
CURRENT	BASE	MAJCOM	DAFSC	AUTOVON AND EXT	DEROS	
DATE ARRIVED STATION		DUTY TITLE		SIGNATURE		

APPENDIX B
AIR FORCE EXIT SURVEY

United States Air Force



OFFICER EXIT SURVEY

USAF SCN 79-45

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, D.C.



The Chief of Staff and I are genuinely concerned about your request for separation--your departure represents a loss of valuable training and experience. While we cannot reasonably expect to retain all young officers, it is essential that we exert every possible effort to make Air Force service as attractive as possible. To do that we must first identify the reasons why officers are separating.

Accordingly, we are asking those officers who request voluntary separation from active duty to complete this Officer Exit Survey. While completion of the survey is voluntary, the importance of your individual feedback cannot be overemphasized. Your candid opinions on how we can improve the Air Force will help immensely. As always, your responses will be treated with complete confidentiality.

Please accept my best wishes for success in your future endeavors.

Sincerely

A handwritten signature in dark ink, reading "Andrew P. IOSUE", is positioned above the typed name.

ANDREW P. IOSUE
Lieutenant General, USAF
DCS/Manpower and Personnel



PRIVACY ACT STATEMENT

In accordance with paragraph 30, AFR 12-35, Air Force Privacy Act Program, the following information about this survey is provided:

- a. Authority. 10 U.S.C., 8012, Secretary of the Air Force: Powers and Duties, Delegation by.
- b. Principal Purpose. Survey conducted to identify factors contributing to officers' decision to separate from the Air Force.
- c. Routine Use. The survey data will be converted to statistical information for use in evaluating AF programs and policies.
- d. Participation in this survey is entirely voluntary.
- e. No adverse action of any kind may be taken against any individual who elects not to participate in this survey.

OFFICER EXIT SURVEY

INSTRUCTIONS: Indicate your answers by circling appropriate letters in this question booklet. Select only one response to each question.

DEMOGRAPHICS

1. What is the first digit of your duty AFSC? (If your duty AFSC were 6724, you would circle the letter G on your booklet for question 1.)

A. 0	C. 2	E. 4	G. 6	I. 8
B. 1	D. 3	F. 5	H. 7	J. 9
2. What is the second digit of your duty AFSC?

A. 0	C. 2	E. 4	G. 6	I. 8
B. 1	D. 3	F. 5	H. 7	J. 9
3. What was your aeronautical rating and primary duty when you decided to separate?

A. I was not rated
B. Pilot, primarily flying duty
C. Pilot, primarily non-flying duty
D. Navigator, primarily flying duty
E. Navigator, primarily non-flying duty
F. Other
4. To which organization are you assigned?

A. Alaskan Air Command	N. Air Force Data Automation Agency
B. US Air Force Academy	O. Air Force Audit Agency
C. Aerospace Defense Command	P. Military Airlift Command
D. US Air Forces in Europe	Q. Pacific Air Forces
E. Air Force Accounting and Finance	R. Strategic Air Command
F. Air Force Logistics Command	S. Tactical Air Command
G. Air Force Systems Command	T. USAF Security Service
H. Air Reserve Personnel Center	U. Air Force Manpower and Personnel Center
I. Air Training Command	V. Air Force Inspection and Safety Center
J. Air University	W. Air Force Communications Service
K. Air Force Office of Special Investigation	X. Other
L. Headquarters Air Force Reserve	
M. Headquarters USAF	
5. What is your present grade?

A. O-1
B. O-2
C. O-3
D. O-4
E. O-5
6. What is your active duty component?

A. Regular officer
B. Career reserve officer
C. Reserve officer (non-career)
7. What was your age on your last birthday?

A. Less than 27 years old	F. 31 years old
B. 27 years old	G. 32 years old
C. 28 years old	H. 33 years old
D. 29 years old	I. 34 years old
E. 30 years old	J. 35 years or over

8. What are your total years of active federal military service (TAFMS)?

- | | |
|----------------------|---------------------|
| A. Less than 4 years | G. 9 years |
| B. 4 years | H. 10 years |
| C. 5 years | I. 11 years |
| D. 6 years | J. 12 years |
| E. 7 years | K. 13 years or more |
| F. 8 years | |

9. What are your total years of active federal commissioned service (TAFCS)?

- | | |
|----------------------|---------------------|
| A. Less than 4 years | G. 9 years |
| B. 4 years | H. 10 years |
| C. 5 years | I. 11 years |
| D. 6 years | J. 12 years |
| E. 7 years | K. 13 years or more |
| F. 8 years | |

10. What is your marital status?

- | | |
|-----------------------|-------------------------------|
| A. Married | C. Divorced and not remarried |
| B. Never been married | D. Legally separated |
| | E. Widower/Widow |

11. What is the source of your commission?

- | | |
|----------------------------|-------------------------------|
| A. Service Academy | D. ROTC |
| B. OTS (prior service) | E. Direct (prior service) |
| C. OTS (non-prior service) | F. Direct (non-prior service) |

12. Think back to when you were commissioned and began active duty. What was your intent in regard to making the Air Force a career?

- A. Definitely would make the Air Force a career
B. Probably would make the Air Force a career
C. Leaned toward making the Air Force a career
D. Undecided
E. Leaned toward not making the Air Force a career
F. Probably would not make the Air Force a career
G. Definitely would not make the Air Force a career

COMMENTS: _____

13. Including your current assignment, how many PCS moves have you had during your Air Force career (exclude initial active duty PCS)?

- | | | |
|------|------|---------------|
| A. 1 | E. 5 | I. 9 |
| B. 2 | F. 6 | J. 10 or more |
| C. 3 | G. 7 | |
| D. 4 | H. 8 | |

14. What is your reaction to the number of PCS moves you have had to make?

- A. Would have liked more
B. About right
C. Would have liked less
D. Would have liked none

COMMENTS: _____

15. Overall, how satisfied have you been with your past active duty assignments?

- A. Very satisfied
- B. Moderately satisfied
- C. Slightly satisfied
- D. Slightly dissatisfied
- E. Moderately dissatisfied
- F. Very dissatisfied

COMMENTS: _____

16. Overall, how satisfied has your spouse/family been with your past assignments?

- A. Very satisfied
- B. Moderately satisfied
- C. Slightly satisfied
- D. Slightly dissatisfied
- E. Moderately dissatisfied
- F. Very dissatisfied
- G. Not applicable. No spouse or family

COMMENTS: _____

17. When first deciding whether to separate, if you could have received the ASSIGNMENT you MOST WANTED, would you have remained in the Air Force?

- A. Yes, definitely
 - B. Yes, probably
 - C. Not sure/undecided
 - D. No, probably not
 - E. No, definitely not
- What would it have been (Job or Aircraft/ Base)? _____

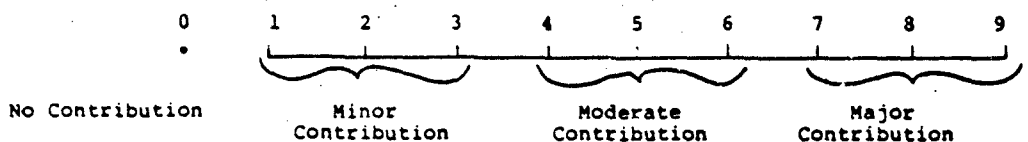
18. Have representatives from your base briefed you on the officer career progression plan?

- A. Yes, and the briefing was adequate
- B. Yes, but the briefing was not adequate
- C. No
- D. Not sure/don't remember

19. Thinking back over your total active duty service in the Air Force, consider the POSITIVE versus the NEGATIVE aspects of your past experience in the Air Force. In balance, how would you rate your career?

- A. Positive aspects far outweigh the negative
- B. Positive aspects somewhat exceed the negative
- C. Positive aspects balance with negative
- D. Negative aspects somewhat exceed the positive
- E. Negative aspects far outweigh the positive

The following statements represent certain issues which may have contributed to your leaving the Air Force. Using the scale illustrated below, rate each issue on how much it contributed to your decision to separate from the Air Force. Although certain issues may have irritated you, we are concerned only with those which contributed to your final decision to separate. Note that the scale shows different degrees of contribution, from no contribution (0) to major contribution (7, 8, or 9). Beside each statement (issue) enter the appropriate scale value (0 thru 9) in the space provided.



- _____ 20. General erosion of benefits
- _____ 21. Inadequate medical and dental care for self
- _____ 22. Inadequate medical and dental care for dependent(s)
- _____ 23. Actual amount of pay too small
- _____ 24. Flight pay too small
- _____ 25. Annual pay increases too small
- _____ 26. Uncertainty resulting from proposed changes in retirement system
- _____ 27. Duty hours too long
- _____ 28. Unstable flight schedule
- _____ 29. Too many additional duties
- _____ 30. Low prestige of military profession
- _____ 31. Too much ancillary training
- _____ 32. Not enough flying time
- _____ 33. Unable to fly during entire career
- _____ 34. Unhappiness with work group
- _____ 35. Supervision and leadership at unit/squadron level
- _____ 36. Supervision and leadership above unit/squadron level
- _____ 37. Excessive family separation due to TDY
- _____ 38. Excessive family separation due to PCS
- _____ 39. Controlled OER(s) received in the past
- _____ 40. Other OER(s) received
- _____ 41. Promotion opportunity
- _____ 42. Little say in future assignments
- _____ 43. Inability to cross-train from one weapon system to another
- _____ 44. Unsatisfactory aircraft/job assignment(s) in the past

- _____ 45. Unsatisfactory location of assignment(s) in the past
- _____ 46. Unsatisfactory future assignment(s)
- _____ 47. Career uncertainty due to up-or-out management system
- _____ 49. Too many petty restrictions
- _____ 49. Requirement for career broadening assignment(s)
- _____ 50. Lack of opportunity for career broadening assignment(s)
- _____ 51. Lack of adequate recognition
- _____ 52. Too many inspections
- _____ 53. Lack of opportunity to demonstrate initiative
- _____ 54. Inadequate authority to carry out responsibilities
- _____ 55. Policies/procedures which undermine stature of an officer
- _____ 56. Spouse's job opportunity/income
- _____ 57. Lack of family acceptance of Air Force way of life
- _____ 58. Opportunity to fly with the airlines
- _____ 59. Civilian job opportunities (non-airlines)
- _____ 60. Higher pay in civilian job (over the long term)
- _____ 61. More job satisfaction in civilian job
- _____ 62. More geographic stability in civilian job
- _____ 63. More job security in civilian job
- _____ 64. More freedom and independence in decision-making in civilian job
- _____ 65. Better people to work with in civilian job
- _____ 66. Less family separation in civilian job
- _____ 67. My changes of being promoted

68. You have indicated a number of factors which contributed to your decision to separate. Looking back on all of this, can you identify ONE SPECIFIC INCIDENT/situation, or factor that convinced you it was time to get out? In other words, "What was the straw that broke the camel's back?" (If there was no single incident and your decision was the result of an accumulation of factors, please check the block below.)

☐ No single incident

69. Which one of the factors listed below would have been most influential in keeping you in the Air Force? (Indicate letter of choice.) _____

70. Which one of the factors listed below would have been second most influential in keeping you in the Air Force? (Indicate letter of choice.) _____

- A. Improved medical benefits
- B. Increased pay
- C. Increased flight pay, bonuses, or continuation incentives
- D. Guaranteed no changes to the present retirement system
- E. Stronger senior leadership support of benefits & retirement system
- F. Career guarantee earlier than 0-4 selection point
- G. Reduced duty hours
- H. Increased decision authority at low levels
- I. Reduced TDY
- J. Improved flight scheduling
- K. Reduced additional duties
- L. Fewer remote and overseas tours
- M. Improved promotion opportunity
- N. Increased control over assignments
- O. Up-cr-out management system discontinued
- P. Reduced uncertainty about periodic pay increases and other benefits
- Q. Improved assignment location
- R. Better aircraft assignment selection
- S. Just be able to fly
- T. Increased sensitivity of supervisors
- U. Fly another weapon system (fighter-type, not including trainer)
- V. Fly another weapon system (multi-engine type)
- W. Increased prestige of military profession
- X. Other (specify): _____

71. How long a period of time was it from when you FIRST began to have doubts about an Air Force career until you put in your separation papers?

- | | |
|---------------|------------------------------------------------------------------|
| A. 1 month | F. 10-12 months |
| B. 2 months | G. 13-18 months |
| C. 3 months | H. 19-24 months |
| D. 4-6 months | I. 25-36 months |
| E. 7-9 months | J. 37 months or more |
| | K. Not applicable. Never planned to make the Air Force a career. |

72. Have you discussed your decision to separate with your commander or his representative?

- A. Yes
- B. No

If no, please explain: _____

73. Was there an attempt made by your commander or his representative to encourage you to change your mind and remain in the Air Force?

- A. Yes
- B. No
- C. Not applicable. My commander is unaware of my decision.

If you were dissatisfied with the attempt, please comment: _____

74. Would you be interested in discussing your decision to separate with a counselor of your choice?

- A. Yes
- B. No

If you have a preference, please designate an individual or office and provide your name along with how you can be contacted: _____

75. What are your plans for the immediate future after separation?

- A. Have job waiting
- B. Have job offer, not yet accepted
- C. Am looking for a job
- D. Return to school
- E. Not seeking employment or schooling
- F. Part-time employment
- G. Self-employment
- H. Don't know/not sure
- I. Other _____

76. What type of employment are you interested in

- A. Airline
- B. Full-time reserve
- C. Agriculture, forestry, fisheries, mining
- D. Manufacturing
- E. Communication, utilities, transportation (other than airline)
- F. Wholesale, retail trade
- G. Finance, insurance, real estate
- H. Business services, entertainment
- I. Education
- J. DOD or military services as a civilian
- K. Other federal government as a civilian
- L. Other government
- M. Medical, legal practice, hospital, church, other community work
- N. Not applicable. I'm not interested in employment.
- O. Other (specify) _____

77. In the first year after separating, how do you expect your civilian income to compare with what you would have made in the Air Force?

- | | |
|-----------------------------|-------------------------|
| A. Civilian much higher | E. Military much higher |
| B. Civilian somewhat higher | F. Don't know |
| C. About the same | G. Not applicable |
| D. Military somewhat higher | |

78. Over the next five to ten years, how would you compare your expected civilian income to what you would have expected in the military?

- | | |
|-----------------------------|-------------------------|
| A. Civilian much higher | E. Military much higher |
| B. Civilian somewhat higher | F. Don't know |
| C. About the same | G. Not applicable |
| D. Military somewhat higher | |

79. Do you plan to join the Guard or Reserve?

- | | |
|------------------------------------|---------------------------------|
| A. Not sure | D. Yes, but waiting for vacancy |
| B. No | E. Yes, have not yet contacted |
| C. Yes, already accepted by a unit | the Guard or Reserve |

80. If you had to do it all over again, would you enter the Air Force (at least until completion of initial obligation)?

- | | |
|------------------------|-----------------------|
| A. Yes, definitely | D. No, probably not |
| B. Yes, probably | E. No, definitely not |
| C. Not sure/don't know | |

81. Would you recommend the Air Force to an interested young man or woman (at least until completion of initial obligation)?

- | | |
|------------------------|-----------------------|
| A. Yes, definitely | D. No, probably not |
| B. Yes, probably | E. No, definitely not |
| C. Not sure/don't know | |

82. Are there any other comments you would like to make?

83. What other questions should we be asking to understand why officers are separating from the Air Force?

THE FOLLOWING QUESTIONS ARE TO BE ANSWERED BY PILOTS/NAVIGATORS ONLY:

84. In what major weapon system group did you last perform primary flying duty?

- | | |
|----------------------------------------------------|-------------------------------------------------------------|
| A. Fighter | G. Strategic Airlift (C-141, C-135/137, WC-135, C-140, C-9) |
| B. Tactical Reconnaissance (RF4, RF101, etc) | H. Tactical Airlift (includes all C-130 series) |
| C. Interceptor | I. Helicopter |
| D. Trainer | J. Medical Evacuation |
| E. Strategic Bomber/Reconnaissance | K. Mission Support |
| F. Tanker (KC/RC/EC-135, E-3, E-4 and C-7/119/123) | L. Other |

85. For how many total years did you perform flying duty (include primary line cockpit, mission aircraft, and flying training)?

- | | |
|------------|---------------------|
| A. 1 year | H. 8 years |
| B. 2 years | I. 9 years |
| C. 3 years | J. 10 years |
| D. 4 years | K. 11 years |
| E. 5 years | L. 12 years |
| F. 6 years | M. 13 years or more |
| G. 7 years | |

86. For how many total commissioned years did you perform non-flying duty (i.e., support jobs or staff jobs which do not include mission aircraft flying)?

- | | |
|------------------------------------------|---------------------|
| A. 0 years, all my jobs were flying jobs | H. 7 years |
| B. 1 year | I. 8 years |
| C. 2 years | J. 9 years |
| D. 3 years | K. 10 years |
| E. 4 years | L. 11 years |
| F. 5 years | M. 12 years |
| G. 6 years | N. 13 years or more |

87. When you entered the Air Force did you plan to use the pilot or navigator training and flying experience you would gain to eventually fly for the airlines?

- A. Yes
- B. No
- C. Undecided

COMMENTS: _____

88. Would you recommend pilot duty in the Air Force to an interested young man or woman?

- | | |
|------------------------|-----------------------|
| A. Yes, definitely | D. No, probably not |
| B. Yes, probably | E. No, definitely not |
| C. Not sure/don't know | |

89. Would you recommend navigator duty in the Air Force to an interested young man or woman?

- | | |
|------------------------|-----------------------|
| A. Yes, definitely | D. No, probably not |
| B. Yes, probably | E. No, definitely not |
| C. Not sure/don't know | |

APPENDIX C
STATISTICAL HYPOTHESES

Hypothesis 1--Tenure is a significant determinant of turnover for USAF pilots in the six to eleven year group.

$$H_0: B_1 = 0$$

$$H_A: B_1 \neq 0$$

Hypothesis 2--Pay and benefits is a significant determinant of turnover for USAF pilots in the six to eleven year group.

$$H_0: B_2 = 0$$

$$H_A: B_2 \neq 0$$

Hypothesis 3--Promotion is a significant determinant of turnover for USAF pilots in the six to eleven year group.

$$H_0: B_3 = 0$$

$$H_A: B_3 \neq 0$$

Hypothesis 4--Peer group integration is a significant determinant of turnover for USAF pilots in the six to eleven year group.

$$H_0: B_4 = 0$$

$$H_A: B_4 \neq 0$$

Hypothesis 5--Role clarity is a significant determinant of turnover for USAF pilots in the six to eleven year group.

$$H_0: B_5 = 0$$

$$H_A: B_5 \neq 0$$

Hypothesis 6--Job autonomy and responsibility is a significant determinant of turnover for USAF pilots in the six to eleven year group.

$$H_0: B_6 = 0$$

$$H_A: B_6 \neq 0$$

Hypothesis 7--Satisfaction with supervisory style is a significant determinant of turnover for USAF pilots in the six to eleven year group.

$$H_0: B_7 = 0$$

$$H_A: B_7 \neq 0$$

Hypothesis 8--Past assignments is a significant determinant of turnover for USAF pilots in the six to eleven year group.

$$H_0: B_8 = 0$$

$$H_A: B_8 \neq 0$$

Hypothesis 9--Assignment policies is a significant determinant of turnover for USAF pilots in the six to eleven year group.

$$H_0: B_9 = 0$$

$$H_A: B_9 \neq 0$$

Hypothesis 10--Family considerations is a significant determinant of turnover for USAF pilots in the six to eleven year group.

$$H_0: B_{10} = 0$$

$$H_A: B_{10} \neq 0$$

Hypothesis 11--Civilian job opportunity is a significant determinant of turnover for USAF pilots in the six to eleven year group.

$$H_0: B_{11} = 0$$

$$H_A: B_{11} \neq 0$$

APPENDIX D
INITIAL MODEL

$$Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6 \\ + B_7X_7 + B_8X_8 + B_9X_9 + B_{10}X_{10} + B_{11}X_{11}$$

where Y = the dependent variable;

B_0 = the intercept value;

B_1 = the potential coefficient of the first independent variable;

X_1 = adscript of B_1 that is the value of the determinant, tenure;

B_2 thru B_{11} = the partial coefficient of the second thru eleventh independent variables;

X_2 = adscript of B_2 that is the value of the determinant, pay;

X_3 = adscript of B_3 that is the value of the determinant, promote;

X_4 = adscript of B_4 that is the value of the determinant, peer;

X_5 = adscript of B_5 that is the value of the determinant, role;

X_6 = adscript of B_6 that is the value of the determinant, job autonomy and responsibility;

X_7 = adscript of B_7 that is the value of the determinant, leader;

X_8 = adscript of B_8 that is the value of the determinant, past assignments;

X_9 = adscript of B_9 that is the value of the determinant, assignment policies;

X_{10} = adscript of B_{10} that is the value of the determinant, family;

X_{11} = adscript of B_{11} that is the value of the determinant, civilian job opportunity.

APPENDIX E
DEDUCED MODEL

$$Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6$$

where Y = the dependent variable;

B_0 = the intercept value;

B_1 = the partial coefficient of the first independent variable;

X_1 = adscript of B_1 that is the value of the determinant, tenure;

B_2 thru B_6 = the partial coefficient of the second thru the sixth independent variables;

X_2 = adscript of B_2 that is the value of the determinant, peer;

X_3 = adscript of B_3 that is the value of the determinant, past assignments;

X_4 = adscript of B_4 that is the value of the determinant, assignment policies;

X_5 = adscript of B_5 that is the value of the determinant, family;

X_6 = adscript of B_6 that is the value of the determinant, civilian job opportunity.

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Captain Clyde E. Gulick graduated from Wichita State University, Wichita, Kansas, with a bachelor's degree in Business Administration. On 30 May 1970, he received a regular commission as a direct result of his distinguished graduate status from the Reserve Officer Training Corps. After completing Undergraduate Flying Training at Laredo AFB, Texas, Captain Gulick attended T-38 Pilot Instructor Training. He served as an instructor at Laredo AFB and at Columbus AFB, Mississippi. During these assignments, Captain Gulick acquired 1200 hours as an instructor and was awarded the certificate of master instructor as well as the selection as Outstanding Instructor Pilot of the quarter (January-March, 1975) of the 50 Flying Training Wing.

Following Squadron Officer School during the summer of 1975, Captain Gulick reported to B-52H Combat Crew Training School at Castle AFB, California. After a year as an aircraft commander at Grand Forks AFB, North Dakota, Captain Gulick was selected for instructor and wing evaluator duties. His effectiveness in these positions resulted in his assimilation into the wing staff as the B-52 Mission Developer. Captain Gulick accumulated a total of 1000 flying hours in the B-52H.

On 5 June 1979, Captain Gulick reported to the AFIT School of Systems and Logistics, Wright-Patterson AFB, Ohio, to study for a Master of Science degree in Logistics Management.

Major Laakman is a senior pilot with over 3500 hours of flying experience. He underwent flying training at Randolph AFB, Texas. His aviation career began with an AC-119G Gunship assignment to Phan Rang AFB, Republic of Vietnam. While in Vietnam, Major Laakman served as both a copilot and pilot in the AC-119, accumulating 165 combat missions. Since Vietnam, Major Laakman has served as an instructor and flight examiner in both the T-39 and KC-135 aircraft. His last assignment prior to AFIT was Chief of Standardization/Evaluation for a KC-135 Air Refueling Group. His assignment following AFIT will be to the Air Force Acquisition Logistics Division, Wright-Patterson AFB, Ohio.